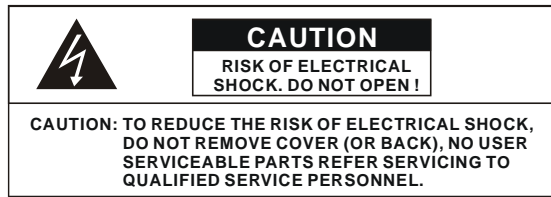Thank you for purchasing our product.
Please read this User's Manual before
using the product. Change without Notice

16 Channel Digital Video Recorder

User's Manual

Safety Precautions

CAUTION

**RISK OF ELECTRICAL
SHOCK. DO NOT OPEN !**

CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK,
DO NOT REMOVE COVER (OR BACK), NO USER
SERVICEABLE PARTS REFER SERVICING TO
QUALIFIED SERVICE PERSONNEL.

This label may appear on the bottom of the unit due to space limitations.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of insulated dangerous Voltage within the product's enclosure that may be sufficient magnitude to constitute risk of electrical shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE UNITS NOT SPECIFICALLY DESIGNED FOR

Attention: installation should be performed by qualified service Personnel only in accordance with the National Electrical Code or applicable local codes.

Power Disconnect. Units with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON-OFF switch is the ON position. The power cord is the main power disconnect for all unites.

"CAUTION: Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the

manufacturer. Dispose of used batteries according to the

manufacturer's instruction."

About this document

Before installing stand alone DVR, be sure to thoroughly review and follow the instructions in this Users Manual. Pay particular attention to the parts that are marked **NOTICE**.
Also, when connecting with external application, first turn the power OFF and follow manual instruction for appropriate installation.

Before reading this document

1. This document is intended for both the administrator and users of stand alone DVR Model.
2. This manual contains information for configuring, managing and using stand alone DVR Model.
3. To prevent fire or electrical shock, do not expose the product to heat or moisture
4. Be sure to read this manual before using stand alone DVR Model.
5. For questions and technical assistance of this product, contact your local dealer.

►Strong recommendation on installation of the DVR unit

1. Check electricity at the place you want to install the DVR unit is stable and meets our electricity requirements.
   Unstable electricity will cause malfunction of the unit or give critical damage to the unit.
2. Several chips on the main board of the DVR unit and hard disk drive inside the unit generate heat, and it must be properly discharged.
   Do not put any objects just beside exhaust port(fan) on the left side of the unit and do not close up an opening (fresh air in-take) on the right side of the unit..
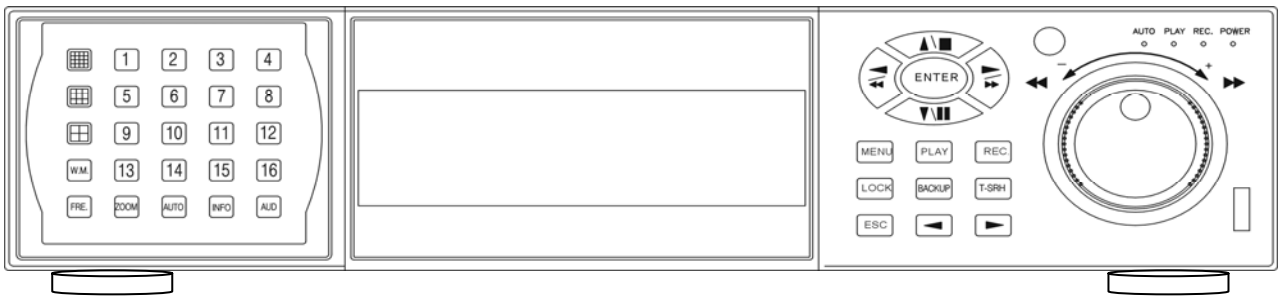3. Put the DVR unit at well-ventilated place and do not put heat-generating objects on the unit.
   When it is installed inside 19 inch mounting rack together with other devices, please check built-in ventilation fan of the rack is properly running.

Content

Unit Description of Front Panel

16 / 9 / 4 split screen

1 ~ 16 full screen

Water Mark function

Freezer / Zoom / Sequence / Information / Audio

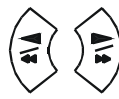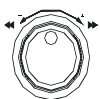|	
MENU :	Menu button
PLAY :	Play button
REC :	Record button
LOCK :	Key lock button
BACKUP :	Data back up button
T-SRH :	Time search playback button
ESC :	Function exit button
◄ ►	Value change button

Direction UP / Down,
Record and play stop,
Playback pause / steps.
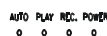
Direction Left / Right
Playback forward or reverse.

ENTER
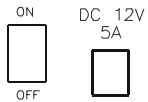
Shuttle

Remote controller IR
Function LED light display

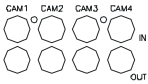USB. Data backup or firmware update

Unit Description of Rear Panel
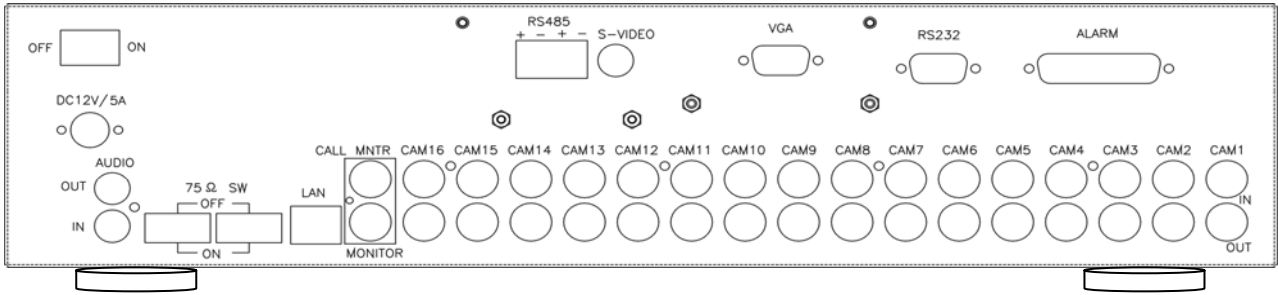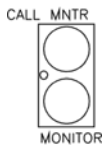

Power cord in 12V/5A, power switcher (ON / OFF)

Camera 1 ~ 16 in and looping out

75 Ohm ON/OFF (high/low adjust)

Audio channel input x 1 and output x 1

Monitor out

S-Video (Y/C) monitor

VGA output. PC monitor connector. (Optional)

RS-485 control keyboard connector

RS-232 connector (ISP. For RD control)
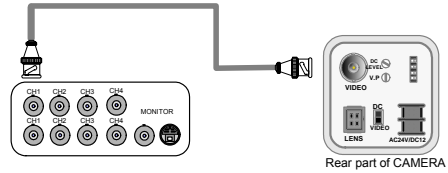
Alarm connector

LAN

Installation

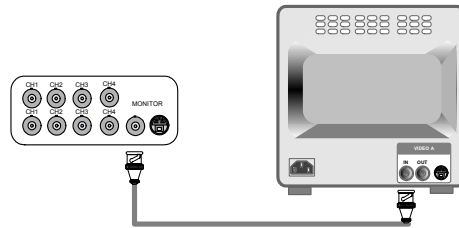## 1) Camera Connection

Connect the camera to the CAMERA INPUT on the Rear Panel of the 16 CH DVR.

Rear part of CAMERA

2) Monitor Connection (Composite Connection Method)

Connect the monitor to the MONITOR OUT on the Rear Panel of the 16 CH DVR.

3) Monitor Connection

Connect S-VIDEO Monitor to MONITOR OUT on the Rear Panel of the 16 CH DVR.
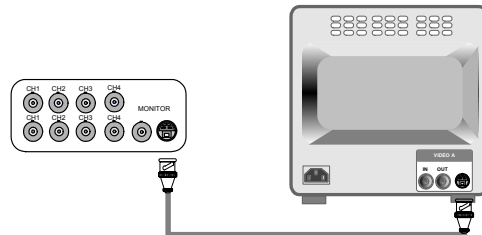
4) Sensor Connection

Connect the Sensor to the SENSOR INPUT/ OUTPUT on the Rear Panel of the system
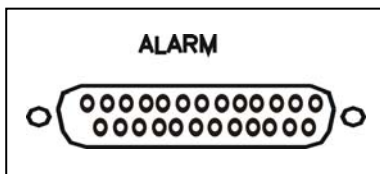
ALARM

13,12,11,10,9,8,7,6,5,4,3,2,1

25,24,23,22,21,20,19,18,17,16,15,14

1. ALARM 1	14. ALARM 13
2. ALARM 2	15. ALARM 14
3. ALARM 3	16. ALARM 15
4. ALARM 4	17. ALARM 16
5. ALARM 5	18.
6. ALARM 6	19.
7. ALARM 7	20. DGND
8. ALARM 8	21. ALARM COM
9. ALARM 9	22. ALARM NC
10.ALARM 10	23. ALARM NO
11. ALARM 11	24. DGND
12.ALARM 12	25. DGND
13. DGND	

◆Relay output : COM+NC, COM+NO

◆Alarm input : Short-circuit between Alarm1, Alarm2, Alarm3 or Alarm4 and GND is recognized as alarm by default. Alarm 1 ~ 16 will be corresponding to Camera 1 ~ 16.

7

NOTICE: Sensor input is RECOGNIZED as LOW when alarm signal is on a level with GND, and it is recognized as HIGH when alarm signal is FLOATING or 5V. Following is internal circuit.

Internal Circuit   5V

                                                         ────◁──o D1
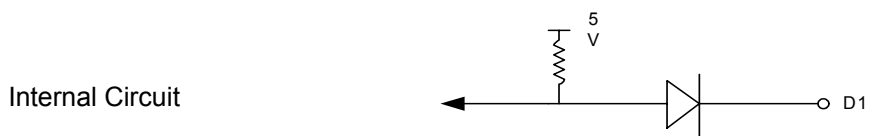
Thus, there is a danger of damage, when the sensor input goes to a Negative level or voltage higher than 5V.

5) Network Connection

DVR connects to LAN
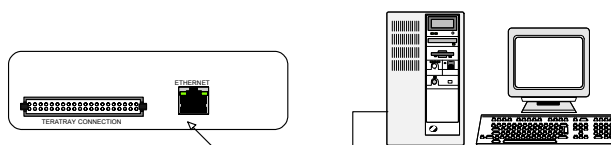
◆To view video image on the computer through internet with DVR view software.

5) HDD connection

① How to connect single HDD
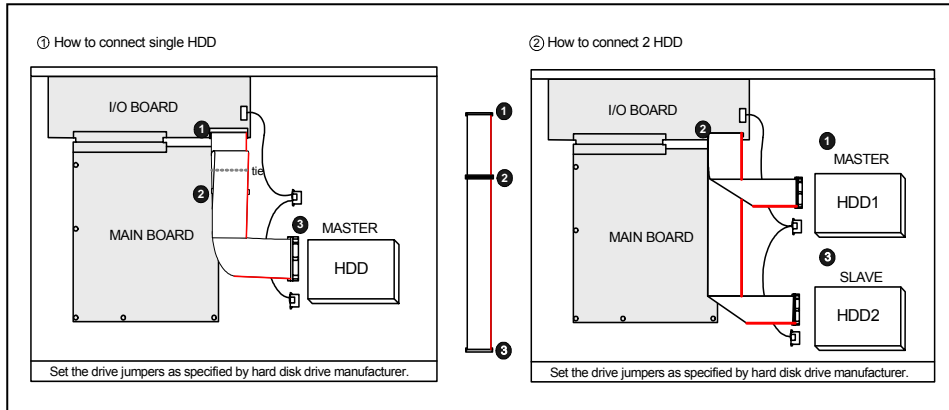
1. Make sure the HDD is MASTER.
2. Make sure the cable connector is correct.
3. Please check the HDD panel for Master set up.

② How to connect 2 HDD

1. Make sure the HDD is MASTER and SLAVE.
2. Make sure the cable connector is correct.
3. Please check the HDD panel for Master and Slave set up.

Notice:

-The 16 ch DVR provides 2 internal hard drives. We provide one hard disk drive with removable rack; the other one is fixed designed.

- We recommend you to set the Removable Hard Disk as Slave. Set another one as the Master.

-Hard Disk Master and Slave jumper pin must right, otherwise it makes DVR work fault.

Hard Disk testing table:

Brand	Model	Capacity	Notice
Seagate	Barracuda	80 GB	
IBM	DeskStar	80 GB	
WD2000	Caviar	200 GB	
Hitachi	DeskStar	80 GB	
Maxtor	MaxLineII	300 GB	

Picture

Full screen or split screen display

Press ⊞⊞⊞ button, to display 16 / 9 / 4 quarterly split screen.

Press numeric buttons ▦ to display the desired camera image in full screen.

1.) FREEZE Mode

1. In live mode press [FRE.] (FREEZE) button to freeze image.

2. Press [FRE.] again to cancel freeze mode.

2.) Zoom Mode(Display Enlargement.)

　Go to full screen mode with numeric buttons at live or playback

　mode, then press ZOOM button to display screen Enlargement.

Use 　 button to move position.

3.) Auto Mode

Press [AUTO] (AUTO) button to start screen auto sequencing, and press it again to cancel auto mode.

4.) W.MARK. Water Mark mode.

Water Mark protection function on or off. To prevent hacker using special software to modify the image data.

5.) INFO (System Information)

```
** SYSTEM INFORMATION **
1.IP ADDR:
2.GATEWAY:
3.NETMASK:
4.NET USER:
5.HDD SIZE:
6.HDD USED:
7.STATUS1
8.STATUS2
9.UPTIME
10.VERSION:
```

6.) BACKUP. Image backup mode.(Image back up must be done on playback mode only.)

Locate the playback point of which you want. Press BACKUP, the BACKUP CAUTION window pop-up. Press ENTER to begin data back up. Capacity of USB device is not limit.

On playback mode, presses BACKUP: Lower-Right corner of the screen:

```
** BACKUP CAUTION **
THE ORIGINAL BACKUP FILE
WILL BE KILLED.
PRESS [ENTER]   TO BACKUP.
PRESS [BACKUP] TO CANCEL.
```

```
                           xxx K
```

xxx K (Presently back up progress)

Important:

If DVR cannot detect USB device, please format it to FAT or FAT 32 on PC OS.

Additional:

During playback, USB device is full or user press BACKUP button screen display a "PAUSE" caption, User takes out the USB device to computer USB slot then save data to hard disk. After re-insert USB device to DVR slot, user press BACKUP again. Press ENTER to continue backup or backup button to cancel.

```
        PAUSE
```
→
```
** BACKUP CAUTION **
THE ORIGINAL BACKUP FILE
WILL BE KILLED.
PRESS [ENTER]   TO BACKUP.
PRESS [BACKUP] TO CANCEL.
```
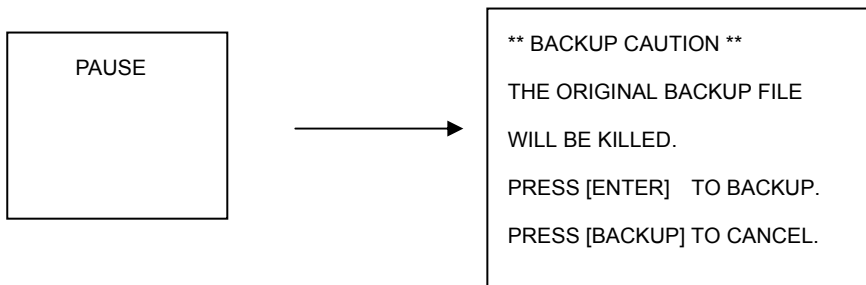
7.) Key Lock function

> On the Live mode, press [LOCK](lock), Only, numeric, freeze, auto, and zoom buttons could work.

Press lock key again to enter the login-in window. Enter admin or user password to unlock.

Key lock function only accept password correct log in even re-boot DVR power.

8.) AUDIO function))))

))))	xxxxxxxxx

FRE. ZOOM AUTO INFO **AUD**
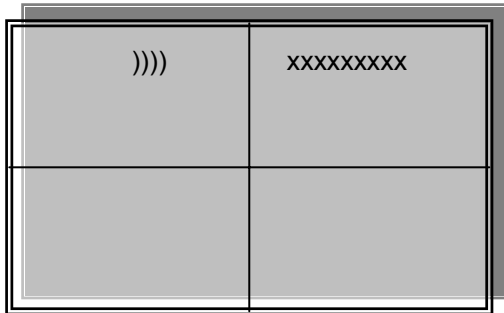
Audio playback: **AUD** (Audio),

)))))))displays on the Upper-left of screen. At that time, audio

will playback. Press it again to turn it off.

Notice

Audio playback only on normal(x 1) playback.

Playback

1. Playback Mode

1) Press [PLAY] button to begin playback. (System playback the images backward)

2. T-SRH button

1) T-SRH: Playback by time search.

Press T-SRH button to active playback function.

Press direction button UP/DOWN to choose items.

```
        MAIN PLAY PAGE
1.MASTER TIME LIST
2.SLAVE TIME LIST
3.MASTER EVENT LIST
4.SLAVE EVENT LIST
5.GOTO DATE: 2004/12/31
6.GOTO TIME: 12:12
7.GOTO PLAY
```
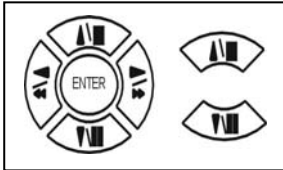
1) TIME LIST (Playback image by Time-Search): Recorded images list (by hours)

```
            TIME LIST
Y / M / D   H : M        Y / M / D   H : M
```
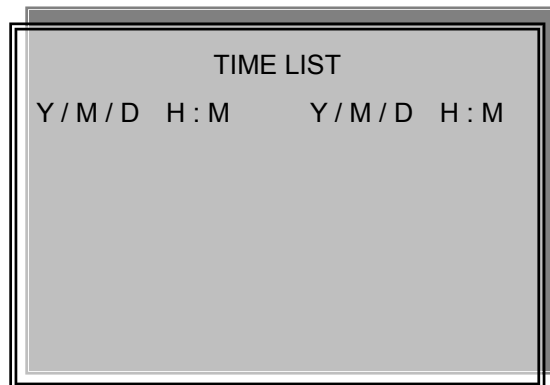
Y / M / D H : M (Beginning of recording time)   Y / M / D H : M (End of recording time)

Every playback data list displays by an hour.

No page display limit. 10 items display on each page.
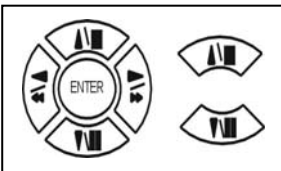
Press direction button UP/DOWN to choose items.

Press ◁ ▷ values change button to change to previous / next page.

2) EVENT LIST (Alarm List): Event source- Video loss / Alarm trigger / Motion / Record

```
                          EVENT LIST
              NO Y / M / D H : M   CH   EVENT
```

10 items display on each page / Total 5000 items display for 500 pages. When event list is out of compass, the total items are less then 5000.

NO Y / M / D H : M   CH   EVENT
>Event happens time and list.

CH: Event Channel Display.
>1 CH ~ 16 CH

Event type.
>Includes Motion / Alarm / V-Loss / Record
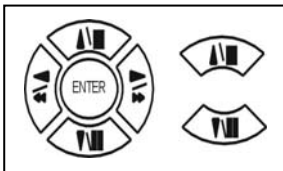
Press direction button UP/DOWN to choose items.

Press ◁ ▷ values change button to change page. Press ENTER to start playback.

>Special time search playback:

Go TO DATE : 2 0 0 2 / 1 2 / 1 2
-Choose year / month / day
>Press direction button Left / Right to choose items, press values change button ◁ ▷ to change value.
GOTO TIME : 1 2 : 1 2
-Choose hour and minute
>Press direction button Left / Right to choose items, press values change button ◁ ▷ to change value.
GOTO PLAY
-Press ENTER button to start playback.
Notice: Playback speed change by ◁ ▷ . Speed is x 1, x 2, x 4, x 8, x 16.

Function Setup

LOGIN

1) Press ⬚MENU button to enter into menu. You could do the system function setup in MENU.

2) Password enter window pop-up:

CHECK PASSWORD MENU

PASSWORD (*****)

Default password (Account-Admin) : 44444

Default password (Account-User) : 11111

3) Press numeric (1 ~ 10)button or remote controller (1 ~ 10)to choose password.

4) Remote controller function buttons are same as DVR panel function buttons.

Press MENU button to enter MAIN SETUP PAGE.

```
                MAIN SETUP PAGE

        1. HDD INFORMATION

        2. DATE-TIME SETUP

        3. DISPLAY     SETUP

        4. CAMERA      SETUP

        5. BUZZER       SETUP

        6. RELAY         SETUP

        7. SYSTEM      SETUP

        8. ADVANCED SETUP


        MENU, ESC: EXIT, ENTER: RUN
```
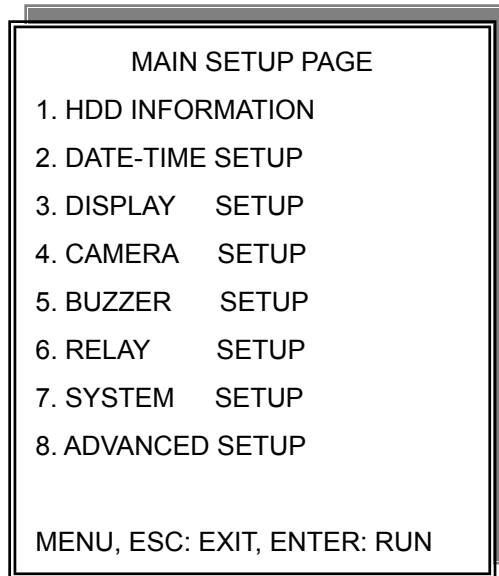
1) Use direction button up/down button to select setup item.

2) Press [ENTER] button to enter into sub-menu function setup.

3) Press sub-menu item with direction button up/down

or left/right button.
And change the value with ◁ ▷ values change button or turn inner-shuttle.
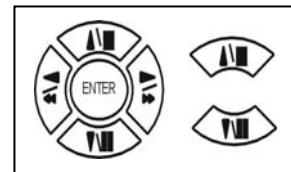
4) Press ESC to go back to main / sub menu or exit menu.

Notice:

1. ADMIN level can setup all DVR menu functions.

2. USER level cannot setup ADVANCED page of DVR main menu function.

1. HDD INFORMATION

```
        MAIN SETUP PAGE

1. HDD INFORMATION
2. DATE-TIME SETUP
3. DISPLAY    SETUP
4. CAMERA     SETUP
5. BUZZER     SETUP
6. RELAY      SETUP
7. SYSTEM     SETUP
8. ADVANCED SETUP


MENU, ESC: EXIT, ENTER: RUN
```

```
POSITION   SIZE   USED   BRAND
MASTER
LAST TIME
SLAVE
LAST TIME


MENU, ESC: EXIT, ◁ ▷ :PAGE
```
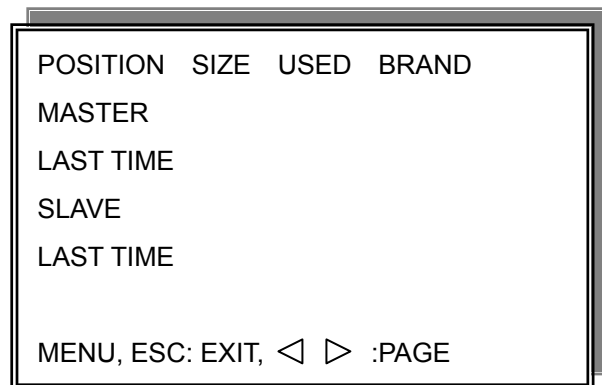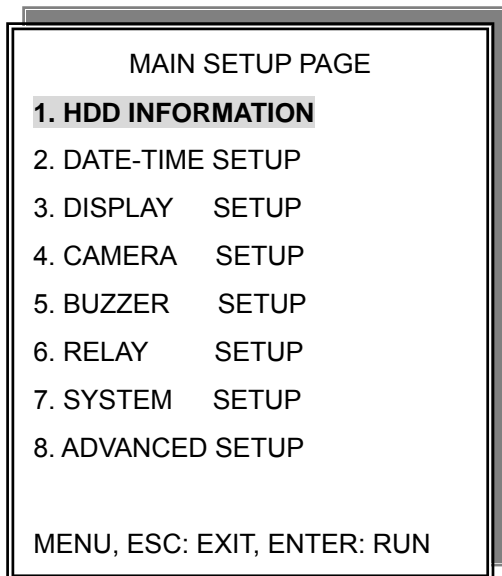
- 2 hard disk information display.

Information display: POSITION   SIZE   USED   BRAND

>POSITON: Master / Slave

>SIZE: Hard Disk capacity. xxGB. Maximum display is 999MB

>USED: 00 ~ 100 %. Hard disk overwrites 100 ~ 199 %.

>BRAND: DVR auto detect hard disk brand.

>LAST TIME: The last record time display.

2. DATE-TIME SETUP

```
        MAIN SETUP PAGE
1. HDD INFORMATION

2. DATE-TIME SETUP

3. DISPLAY    SETUP

4. CAMERA    SETUP

5. BUZZER     SETUP

6. RELAY       SETUP

7. SYSTEM    SETUP

8. ADVANCED SETUP


MENU, ESC: EXIT, ENTER: RUN
```

```
DATE-TIME SETUP PAGE

1. DATE 2000 / 00 / 00

2. TIME

3. FORMAT

3. DISPLAY AT xx LINE(S)


MENU, ESC:EXIT,  ◁  ▷ :MODIFY
```
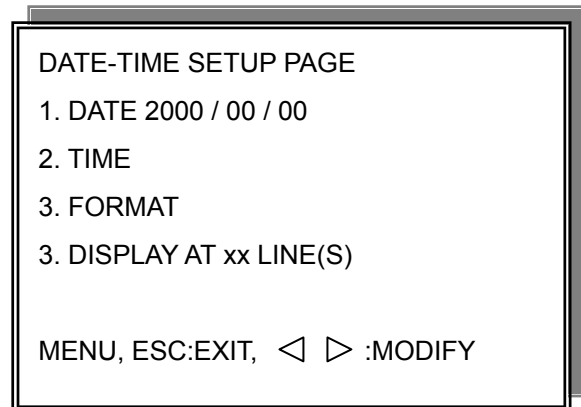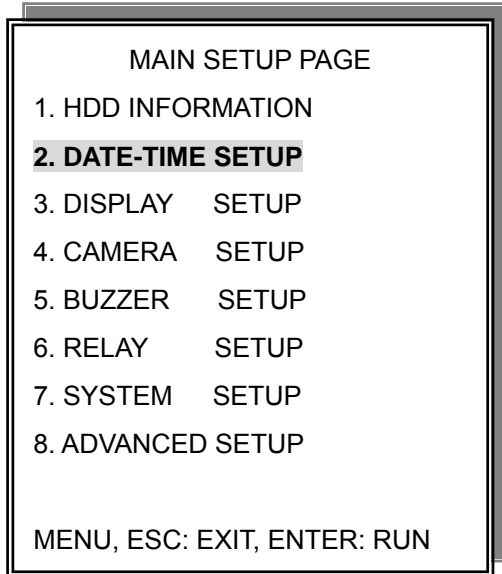
1. DATE

2. TIME: > Use direction button up/down choose position, values change button to change date and time values.

3. FORMAT:

> YY/MM/DD, MM/DD/YY, DD/MM/YY, YY/ENG/DD, ENG/DD/YY, DD/ENG/YY, YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY, YYYY/ENG/DD, ENG/DD/YYYY, DD/ENG/YYYY.
> Y=Year. M=Month. D=Day. ENG=Month display in English.

4. DISPLAY AT xx LINE(S)

  -Date and Time position on screen xx line(s). 00 ~ 23.

-. Day and time change

Press direction button up/down/left/right to choose items or move date-time position.

Press ◁ ▷ values change button to change values.

3. DISPLAY SETUP

```
        MAIN SETUP PAGE
1. HDD INFORMATION
2. DATE-TIME SETUP
3. DISPLAY    SETUP
4. CAMERA    SETUP
5. BUZZER    SETUP
6. RELAY     SETUP
7. SYSTEM    SETUP
8. ADVANCED SETUP


MENU, ESC: EXIT, ENTER: RUN
```

```
DISPLAY SETUP PAGE

1. DATE-TIME            ON
2. CAMERA TITLE         ON
3. PB DATE-TIME         ON
4. PB CAMERA TITLE      ON
5. DVR STATUS           ON
6. BORDER COLOR         WHITE


MENU, ESC:EXIT,  ◁ ▷ :MODIFY
```
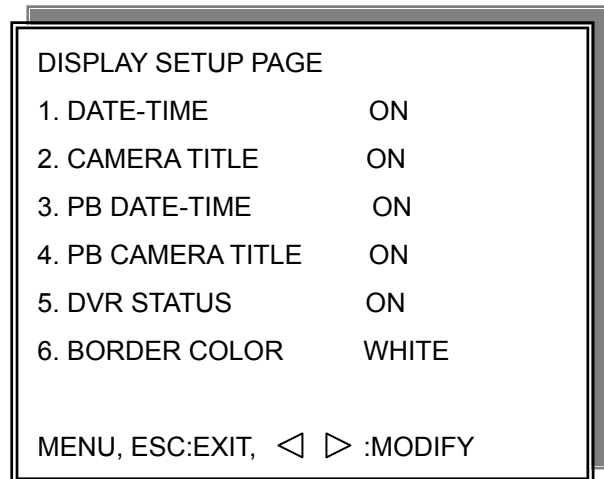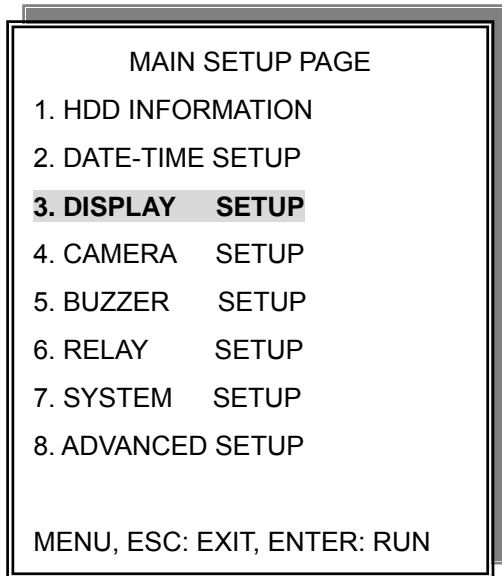
1. DATE-TIME: Date and Time caption display mode on or off setup.

    >ON / OFF

2. CAMERA TITLE: Camera Title caption display mode on or off setup.

    >ON / OFF

3. PB DATE-TIME: Play back date and time caption display mode on or off setup.

    >ON / OFF

4. PB CAMERA TITLE: Play back camera title caption display mode on or off setup.

    >ON / OFF

5. DVR STATUS: DVR system, record, playback, audio caption display mode on or off setup.

    >ON / OFF

6. BORDER COLOR: Border color WHITE / DARK / BLACK / GRAY.

Press direction button up/down to choose the desired item.

Press ◁ ▷ values change button to change values.

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4. CAMERA SETUP

```
       MAIN SETUP PAGE
1. HDD INFORMATION
2. DATE-TIME SETUP
3. DISPLAY     SETUP
4. CAMERA      SETUP
5. BUZZER      SETUP
6. RELAY       SETUP
7. SYSTEM      SETUP
8. ADVANCED SETUP


MENU, ESC: EXIT, ENTER: RUN
```

```
CAMERA SETUP PAGE
1. COLOR SETUP
2. TITLE SETUP
3. SCREEN POSITION SETUP
4. V-LOSS DISPLAY SETUP
5. VIDEO MASK SETUP


MENU, ESC: EXIT, ENTER: RUN
```

(1.) COLOR SETUP

```
CAMERA SETUP
1. COLOR SETUP
2. TITLE SETUP
3. SCREEN POSITION SETUP
4. V-LOSS DISPLAY SETUP
5. VIDEO MASK SETUP
```

```
       COLOR SETUP PAGE
** CHANNEL NUMBER   01
1. BRIGHTNESS    00
2. CONTRAST      00
3. SATURATION     00
4. HUE            00
5. GAIN            00
>>DEFAULT RESET<<


MENU,ESC:EXIT, ◁  ▷:MODIFY
```

COLOR SETUP : Adjust Camera Image

CHANNEL NUMBER   : Select camera 01 ~ 16

BRIGHTNESS   : Adjust screen brightness   (-31~ +32)

CONTRAST   : Adjust color contrast   (-31~ +32)

SATURATION   : Adjust color saturation   (-31~ +32)

HUE   : Adjust color hue   (-31~ +32)

GAIN   : Adjust image signal level   (-31~ +32)

>>DEFAULT RESET<< : Press ENTER button to reset DVR values.

Press direction button up/down to choose items.

Press ◁ ▷ values change button to change values.

>Right adjustment of each element in COLOR setup will increase picture quarterly displayed. We recommend you to adjust each element of COLOR SETUP for cameras and monitor to be connected to the DVR unit.

(2.) TITLE SETUP: Input TITLE of each camera. 9 characters can be input.

```
CAMERA SETUP
1. COLOR SETUP
2. TITLE SETUP
3. SCREEN POSITION SETUP
4. V-LOSS DISPLAY SETUP
5. VIDEO MASK SETUP
```

```
              TITLE SETUP PAGE
CH 01 (01    )    CH 09 (09    )
CH 02 (02    )    CH 10 (10    )
CH 03 (03    )    CH 11 (11    )
CH 04 (04    )    CH 12 (12    )
CH 05 (05    )    CH 13 (13    )
CH 06 (06    )    CH 14 (14    )
CH 07 (07    )    CH 15 (15    )
CH 08 (08    )    CH 16 (16    )


MENU, ESC: EXIT: ◁  ▷ : MODIFY
```
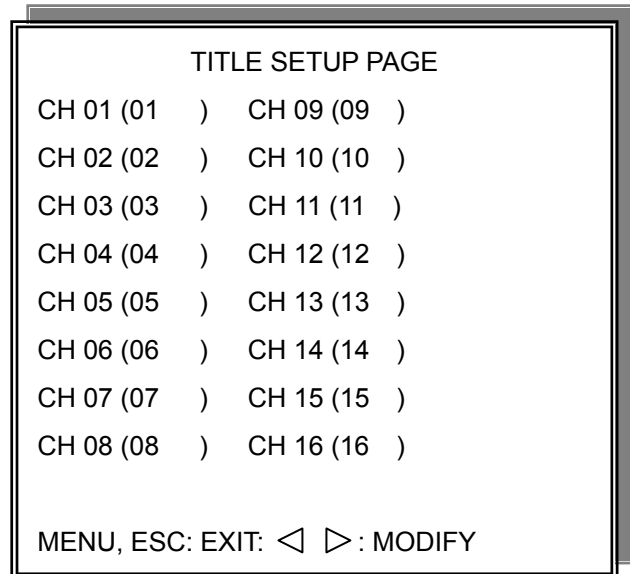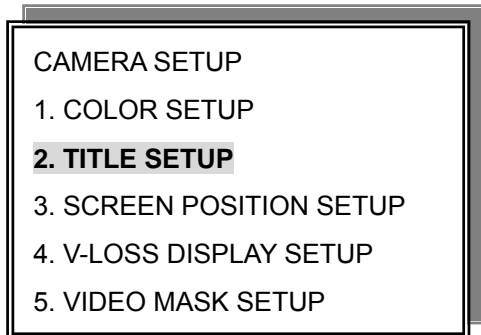
Press direction button up/down/left/right to choose items and position.

Press ◁ ▷ values change button to change values.

Characters choose:

Space:

Numeric: 0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9

Capital letter: A / B / C / D / E / F / G / H / I / J / K / L / M / N / O / P / Q / R / S / T / U / V / W / X / Y / Z

(3.) SCREEN POSITION SETUP

CAMERA SETUP

1. COLOR SETUP

2. TITLE SETUP

3. SCREEN POSITION SETUP

4. V-LOSS DISPLAY SETUP

5. VIDEO MASK SETUP

```
**** SCREEN POSITION****
              UP
               ↑
               |
LEFT  ←--------+-------→  RIGHT
               |
               ↓
             DOWN
       ENTER : DEFAULT
       ESC   : QUIT
```
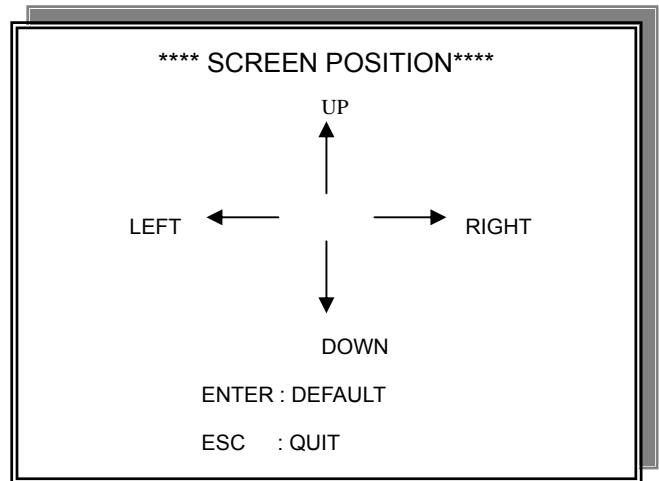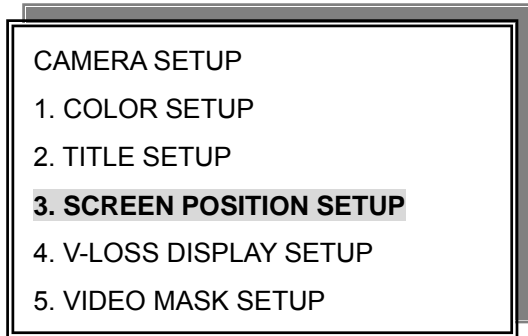
1.

Press direction buttons up/down/left/right to move screen position.

2. Press ENTER button for default.

3. Press ESC button to quit.

(4.) V-LOSS DISPLAY SETUP

CAMERA SETUP
1. COLOR SETUP
2. TITLE SETUP
3. SCREEN POSITION SETUP
4. V-LOSS DISPLAY SETUP
5. VIDEO MASK SETUP

VLOSS SETUP PAGE

**V-LOSS FUNCTION:

CH 01 : ON   CH 09 : ON

CH 02 : ON   CH 10 : ON

CH 03 : ON   CH 11 : ON

CH 04 : ON   CH 12 : ON

CH 05 : ON   CH 13 : ON

CH 06 : ON   CH 14 : ON

CH 07 : ON   CH 15 : ON

CH 08 : ON   CH 16 : ON

MENU, ESC: EXIT: ◁ ▷ : MODIFY
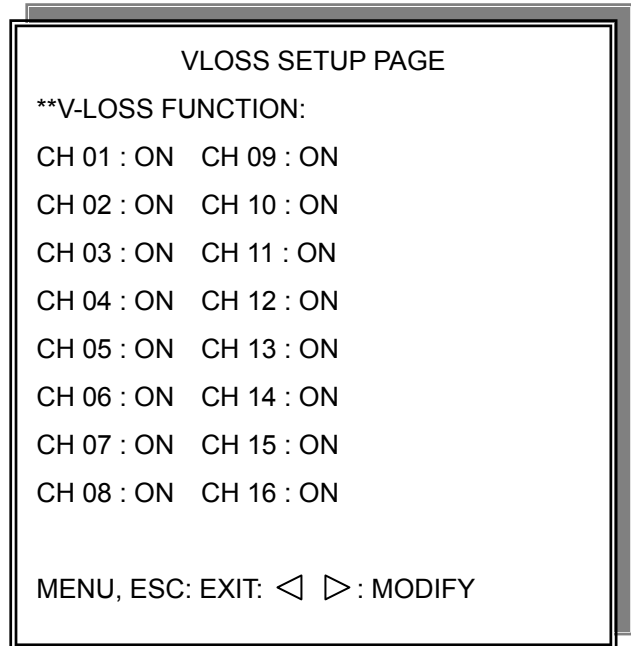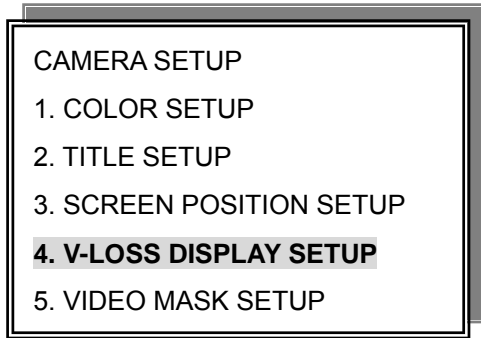
** V-LOSS FUNCTION: ON / OFF

CH 01 : ON / OFF   CH 09 : ON / OFF

CH 02 : ON / OFF   CH 10 : ON / OFF

CH 03 : ON / OFF   CH 11 : ON / OFF

CH 04 : ON / OFF   CH 12 : ON / OFF

CH 05 : ON / OFF   CH 13 : ON / OFF

CH 06 : ON / OFF   CH 14 : ON / OFF

CH 07 : ON / OFF   CH 15 : ON / OFF

CH 08 : ON / OFF   CH 16 : ON / OFF

Press direction buttons up/down/left/right to choose items.

◁ ▷   Press values change button to change values.

(5.) VIDEO MASK SETUP

```
CAMERA SETUP
1. COLOR SETUP
2. TITLE SETUP
3. SCREEN POSITION SETUP
4. V-LOSS DISPLAY SETUP
5. VIDEO MASK SETUP
```

```
            VIDEO MASK SETUP PAGE
**VIDEO MASK FUNCTION:
CH 01       CH 09
CH 02       CH 10
CH 03       CH 11
CH 04       CH 12
CH 05       CH 13
CH 06       CH 14
CH 07       CH 15
CH 08       CH 16


MENU, ESC: EXIT:    ◁  ▷  : MODIFY
```

**VIDEO MASK FUNCTION: ON / OFF

CH 01 : ON / OFF   CH 09 : ON / OFF

CH 02 : ON / OFF   CH 10 : ON / OFF

CH 03 : ON / OFF   CH 11 : ON / OFF

CH 04 : ON / OFF   CH 12 : ON / OFF

CH 05 : ON / OFF   CH 13 : ON / OFF

CH 06 : ON / OFF   CH 14 : ON / OFF

CH 07 : ON / OFF   CH 15 : ON / OFF

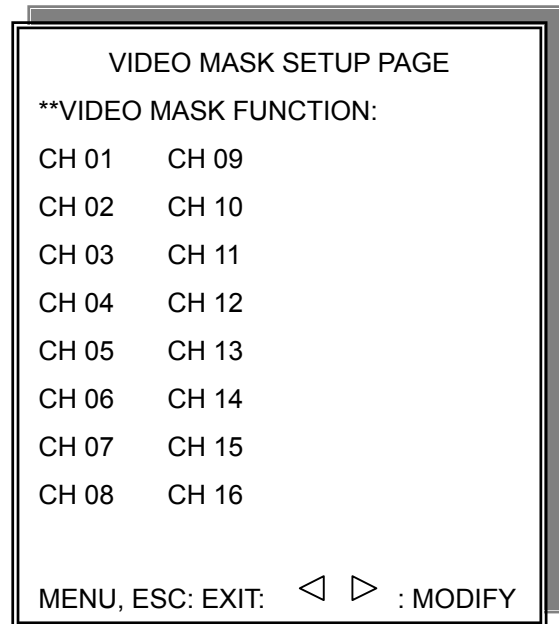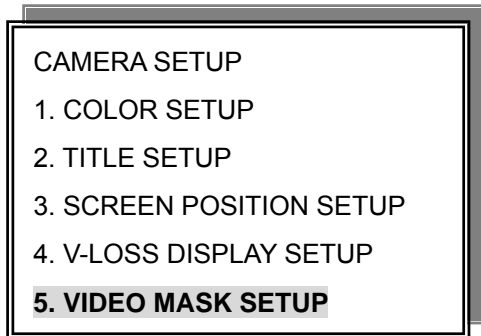CH 08 : ON / OFF   CH 16 : ON / OFF

MASK means the channel would not display on the live screen, but still can set it on recording.
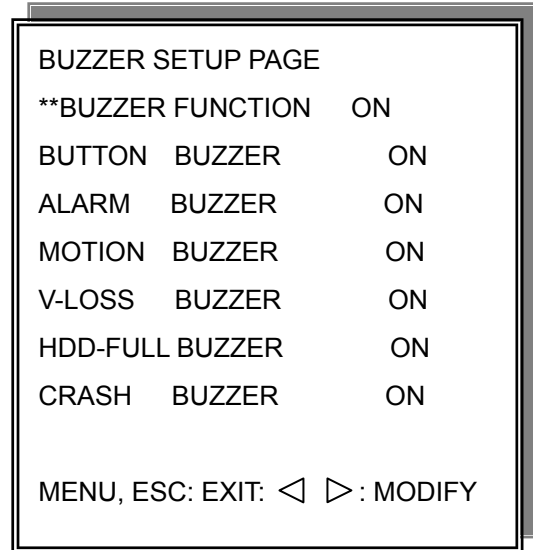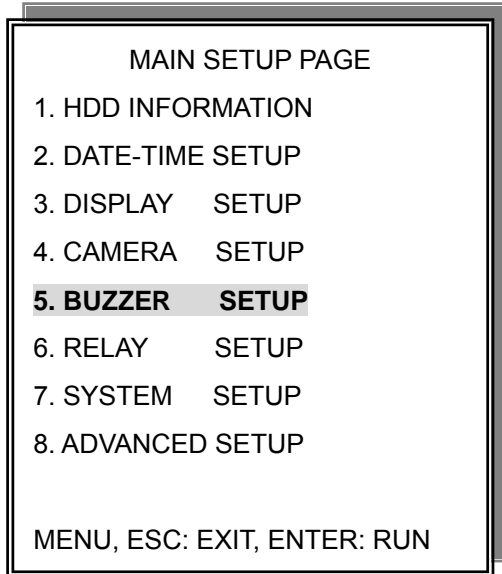
Press direction buttons up/down/left/right to choose items.

◁ ▷   Press values change button to change values.

5. BUZZER SETUP

```
┌──────────────────────────────┐
│      MAIN SETUP PAGE          │
│  1. HDD INFORMATION           │
│  2. DATE-TIME SETUP           │
│  3. DISPLAY    SETUP          │
│  4. CAMERA     SETUP          │
│  5. BUZZER     SETUP          │
│  6. RELAY      SETUP          │
│  7. SYSTEM     SETUP          │
│  8. ADVANCED SETUP            │
│                               │
│  MENU, ESC: EXIT, ENTER: RUN  │
└──────────────────────────────┘
```

```
┌──────────────────────────────┐
│  BUZZER SETUP PAGE            │
│  **BUZZER FUNCTION    ON      │
│  BUTTON   BUZZER       ON      │
│  ALARM    BUZZER       ON      │
│  MOTION   BUZZER       ON      │
│  V-LOSS   BUZZER       ON      │
│  HDD-FULL BUZZER       ON      │
│  CRASH    BUZZER       ON      │
│                               │
│  MENU, ESC: EXIT: ◁  ▷ : MODIFY │
└──────────────────────────────┘
```

**BUZZER FUNCTION: All buzzer function

　　>ON / OFF

1. BUTTON BUZZER?

　> ON / OFF

2. ALARM BUZZER?

　> ON / OFF

3. MOTION BUZZER?

　> ON / OFF

4. VLOSS BUZZER?

　> ON / OFF

5. HDD-FULL?

　> ON / OFF (Buzzer on if hard disk record only once.)

6. CRASH?

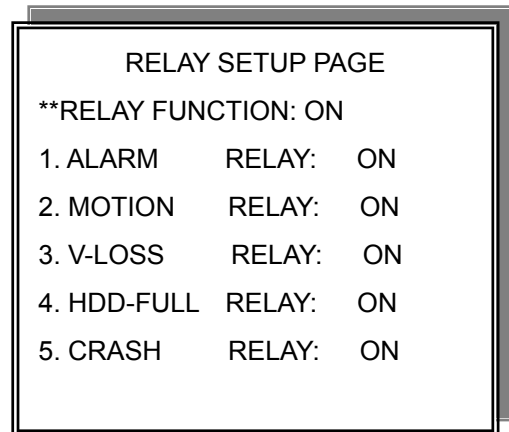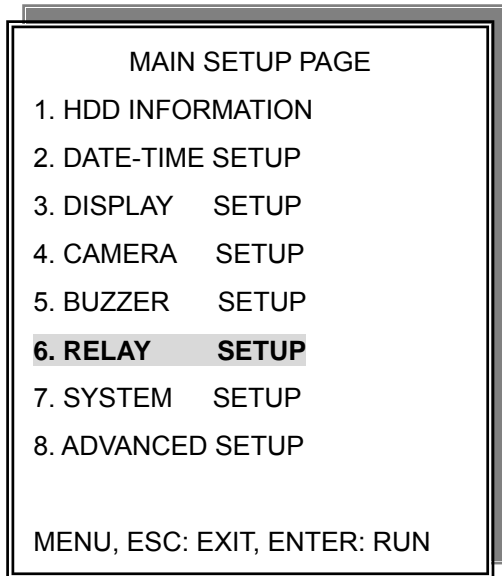　> ON / OFF (Buzzer on if hard disk has crash area.)

Press direction buttons up/down to BUZZER SETUP items.

◁ ▷　　　　Press values change button to change values.

6. RELAY SETUP

```
        MAIN SETUP PAGE
1. HDD INFORMATION
2. DATE-TIME SETUP
3. DISPLAY    SETUP
4. CAMERA     SETUP
5. BUZZER     SETUP
6. RELAY      SETUP
7. SYSTEM     SETUP
8. ADVANCED SETUP


MENU, ESC: EXIT, ENTER: RUN
```

```
        RELAY SETUP PAGE
**RELAY FUNCTION: ON
1. ALARM       RELAY:    ON
2. MOTION      RELAY:    ON
3. V-LOSS      RELAY:    ON
4. HDD-FULL  RELAY:    ON
5. CRASH       RELAY:    ON
```

**RELAY FUNCTION: ON

1. ALARM   RELAY: ON

2. MOTION   RELAY: ON

3. VLOSS   RELAY: ON

4. HDD FULL   RELAY: ON (Relay on if hard disk record only once.)

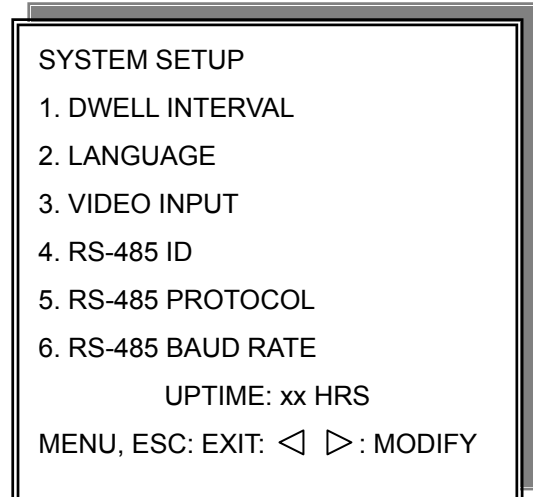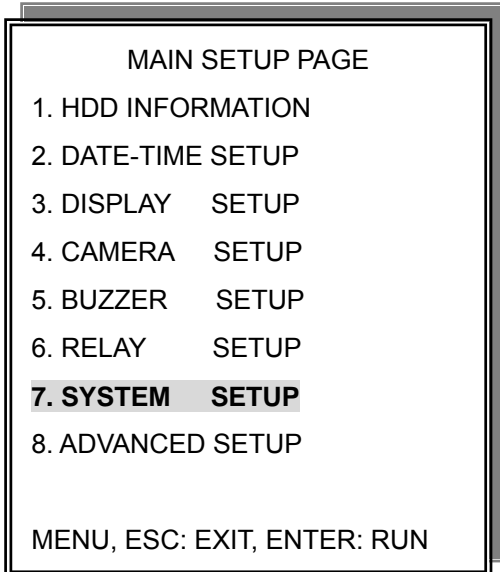5. CRASH   RELAY: ON (Relay on if hard disk has crash area.)

Press direction buttons up/down to each item.

◁ ▷   Press values change button to change values.

7. SYSTEM SETUP

```
        MAIN SETUP PAGE
1. HDD INFORMATION
2. DATE-TIME SETUP
3. DISPLAY    SETUP
4. CAMERA     SETUP
5. BUZZER      SETUP
6. RELAY        SETUP
7. SYSTEM     SETUP
8. ADVANCED SETUP


MENU, ESC: EXIT, ENTER: RUN
```

```
SYSTEM SETUP
1. DWELL INTERVAL
2. LANGUAGE
3. VIDEO INPUT
4. RS-485 ID
5. RS-485 PROTOCOL
6. RS-485 BAUD RATE
           UPTIME: xx HRS
MENU, ESC: EXIT: ◁ ▷: MODIFY
```

SYSTEM SETUP

1. DWELL INTERVAL:

 - 0 ~ 999SEC

2. LANGUAGE:

  - ENGLISH / CHINESE / JAPANESE / FRENCH

  - After change language, user needs to exit menu. Language would change next time back to menu.

3. VIDEO INPUT: NTSC / PAL system detection.

  - AUTO / NTSC / PAL

  - User needs to connect camera with power first before DVR power on if choose AUTO. If manual NTSC / PAL, then need to power reset.

4. RS-485 ID:

 - 01 ~ 16

5. RS-485 PROTOCOL

 - KEYB / LILIN / PELCO-P / PELCO-D / NICECAM / OFF

6. RS-485 BAUD RATE

 - 1200 / 2400 / 4800 / 9600

-UPTIME: xx HRS. This means the total system working time after DVR first power on.

RS-485 ID and protocol is the command for system control keyboard. If user has no keyboard to control then does not have to care.
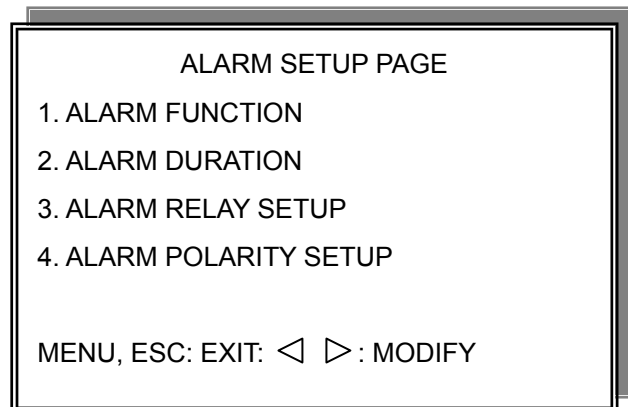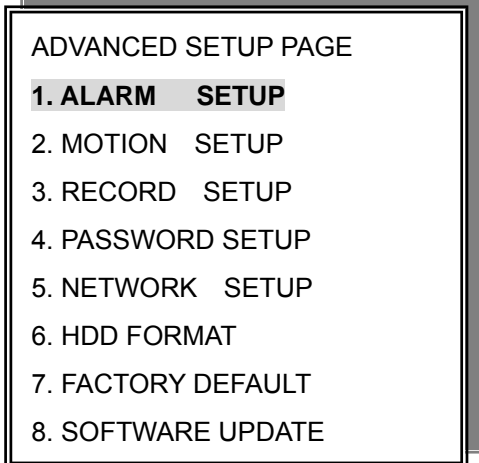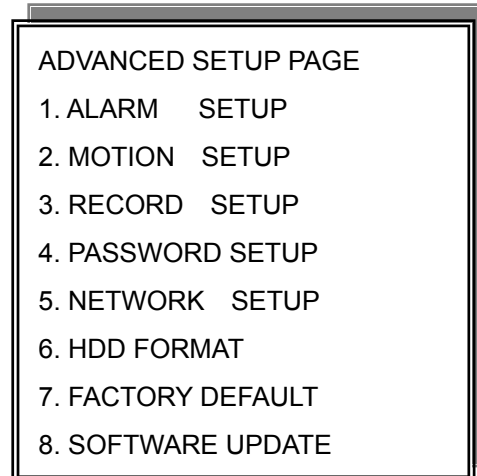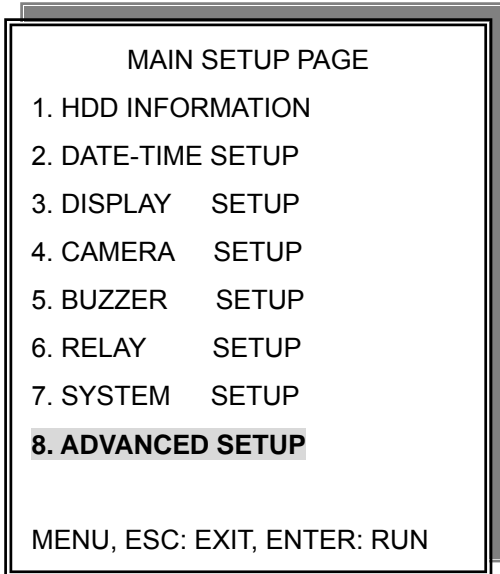

Press direction buttons up/down to choose items.

◁ ▷   Press values change button to change values.

8. ADVANCED SETUP

```
         MAIN SETUP PAGE
1. HDD INFORMATION
2. DATE-TIME SETUP
3. DISPLAY     SETUP
4. CAMERA      SETUP
5. BUZZER      SETUP
6. RELAY       SETUP
7. SYSTEM      SETUP
8. ADVANCED SETUP


MENU, ESC: EXIT, ENTER: RUN
```

```
ADVANCED SETUP PAGE
1. ALARM     SETUP
2. MOTION    SETUP
3. RECORD    SETUP
4. PASSWORD SETUP
5. NETWORK    SETUP
6. HDD FORMAT
7. FACTORY DEFAULT
8. SOFTWARE UPDATE
```

```
ADVANCED SETUP PAGE
1. ALARM     SETUP
2. MOTION    SETUP
3. RECORD    SETUP
4. PASSWORD SETUP
5. NETWORK    SETUP
6. HDD FORMAT
7. FACTORY DEFAULT
8. SOFTWARE UPDATE
```

```
         ALARM SETUP PAGE
1. ALARM FUNCTION
2. ALARM DURATION
3. ALARM RELAY SETUP
4. ALARM POLARITY SETUP


MENU, ESC: EXIT: ◁ ▷ : MODIFY
```

1. Alarm function: ON / OFF. Function on, all channel will record if alarm trigger.

2. Alarm duration: 0 ~ 999

ALARM RELAY SETUP

>ALARM 01 ~ ALARM 16: ON / OFF

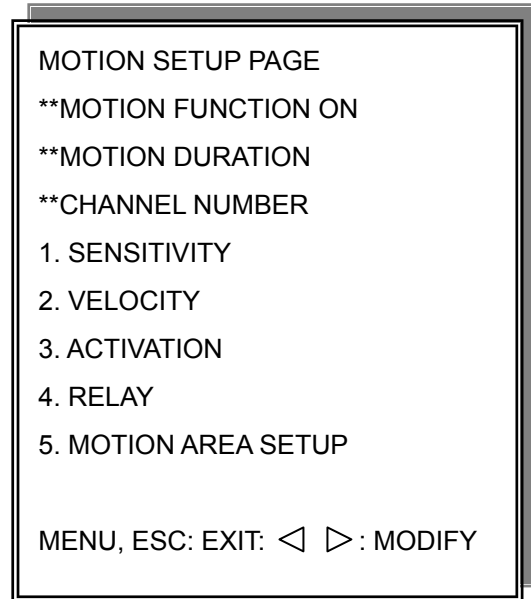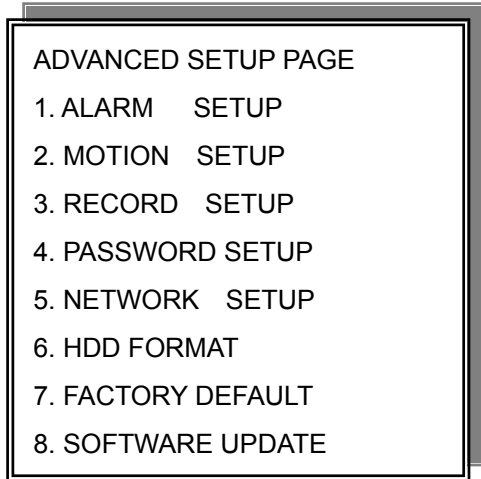ALARM POLARITY SETUP

>ALARM 01 ~ ALARM 16: N.O. / N.C. / OFF

     Press direction buttons up/down to choose items.

◁ ▷   Press values change button to change values.

2. MOTION SETUP

```
ADVANCED SETUP PAGE

1. ALARM     SETUP

2. MOTION    SETUP

3. RECORD    SETUP

4. PASSWORD SETUP

5. NETWORK   SETUP

6. HDD FORMAT

7. FACTORY DEFAULT

8. SOFTWARE UPDATE
```

```
MOTION SETUP PAGE

**MOTION FUNCTION ON

**MOTION DURATION

**CHANNEL NUMBER

1. SENSITIVITY

2. VELOCITY

3. ACTIVATION

4. RELAY

5. MOTION AREA SETUP


MENU, ESC: EXIT: ◁ ▷ : MODIFY
```

MOTION SETUP

**MOTION FUNCTION (For all channel)

　-ON / OFF

**MOTION DURATION

　-0 ~ 999

**CHANNEL NUMBER

　-CH 01 ~ 16

1. SENSITIVITY Adjusts motion Detection Sensitivity.

　-1 ~ 32 (low →high)

2. VELOCITY Adjusts motion object slow /fast speed detection

　-1 ~ 10 (slow speed→fast speed)

3. ACTIVATION (For each channel)

　-ON / OFF. The function only for channel motion detect active, not for motion record per each.

4. RELAY

　-ON / OFF

5. >MOTION AREA SETUP<

Press direction buttons up/down to choose items.

◁ ▷　　　Press values change button to change values.
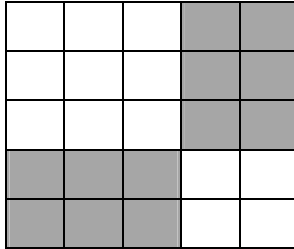
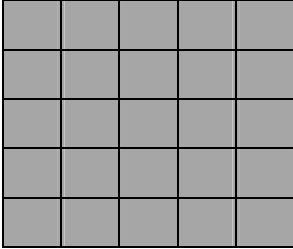## > MOTION AREA SETUP <

All area detect with factory default. Press ENTER button to change mode and then increase or reduce.

For example:
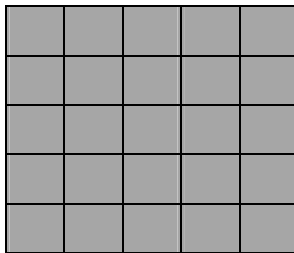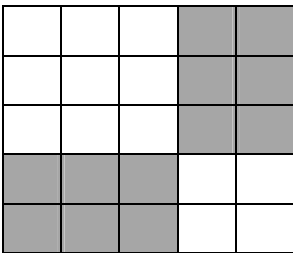
Clear lattices   ⟷   Press value change button to reduce. ◁

Add lattices   ⟷   Press value change button to reduce. ▷

Icon:

Press ▷ to increase all area, press ◁ to reduce all area.

Icon:

Press Up / Down / Left / Right direction key to move, press ▷ to increase lattices; press ◁ to reduce lattices.
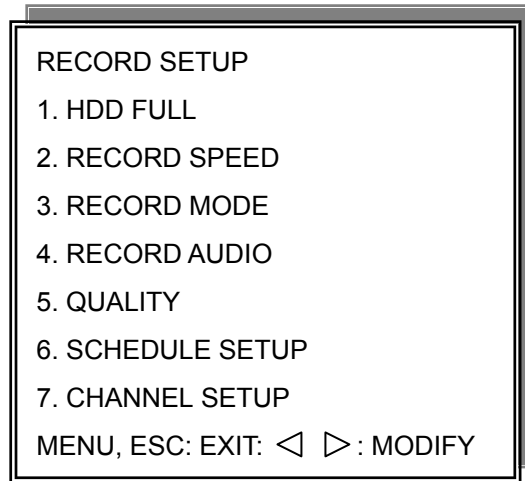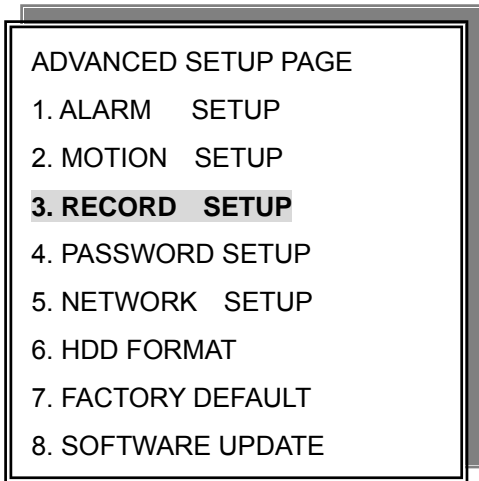
Icon: +

Press Up / Down / Left / Right direction key to move and increase area.

Icon: X

Press Up / Down / Left / Right direction key to move and reduce area.

3. RECORD SETUP

```
ADVANCED SETUP PAGE
1. ALARM    SETUP
2. MOTION   SETUP
3. RECORD   SETUP
4. PASSWORD SETUP
5. NETWORK  SETUP
6. HDD FORMAT
7. FACTORY DEFAULT
8. SOFTWARE UPDATE
```

```
RECORD SETUP
1. HDD FULL
2. RECORD SPEED
3. RECORD MODE
4. RECORD AUDIO
5. QUALITY
6. SCHEDULE SETUP
7. CHANNEL SETUP
MENU, ESC: EXIT: ◁  ▷ : MODIFY
```
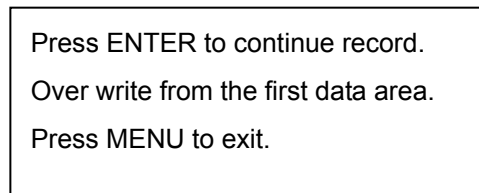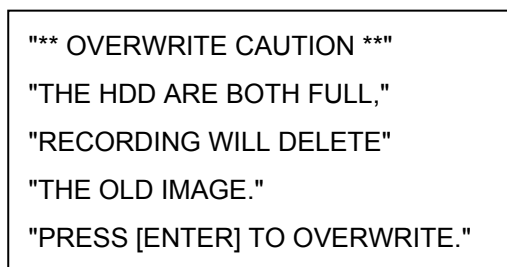
RECORD SETUP

1)   HDD FULL: When hard disk is full, DVR next step is kept overwrite record or stop record?

-OVERWRITE / STOP REC

Notice: STOP REC：One hard disk record full, stop record. Two hard disk, both of them record full, stop record.

Record process	OVERWRITE	STOP REC
M(99%), S(0%) → M(100%), S(0%)	To second and record	To second and record
M(99%), S(100%) → M(100%), S(100%)	To second and record	To second and record
M(0%), S(99%) → M(0%), S(100%)	To first and record	To first and record
M(100%), S(99%) → M(100%), S(100%)	To first and record	Stop record

Notice:

When hard disk is full, system buzzer on, and then presses ENTER to stop. Next to press REC, over write message window popup.

```
"** OVERWRITE CAUTION **"
"THE HDD ARE BOTH FULL,"
"RECORDING WILL DELETE"
"THE OLD IMAGE."
"PRESS [ENTER] TO OVERWRITE."
```

```
Press ENTER to continue record.
Over write from the first data area.
Press MENU to exit.
```

2)   RECORD SPEED: Record FPS setup

   -1/30(1/30), 1/15(1/15), 1/10(1/10), 1/5 (1/5), 1/3 (1/3), 1/2 (1/2), 1(1), 2(2), 3(3.13), 5(5), 10 (8.33),

   15(12.5), 30(25), 60(50), 120(100).

3)   RECORD MODE: Record mode setup.

   -ALWAYS / SCHEDULE / EVENT / EVENT ON SCHEDULE / EVENT + SCHEDULE

4)   RECORD AUDIO: Audio record setup

   -ON / OFF. (Suggest not fewer than 5 fps.)

5)   QUALITY: Record image quality setup

   - SUPER / HIGH / FINE / NORMAL / LOW

6)   SCHEDULE SETUP

Press direction buttons up/down to choose item.

◁ ▷   Press values change button to change values.

Additional:

2. RECORD SPEED. 1/30(1/30), 1/15(1/15), 1/10(1/10), 1/5 (1/5), 1/3 (1/3), 1/2 (1/2), 1(1), 2(2), 3(3.13), 5(5),

10 (8.33), 15(12.5), 30(25), 60(50), 120(100).

-120 is the maximum fps.

3. RECORD MODE. ALWAYS / SCHEDULE / EVENT / EVENT ON SCHEDULE / EVENT + SCHEDULE.

-Always: 24 hours recording.

-Schedule: Date and time schedule recording mode.

-Event: Alarm / Motion / V-Loss event mode recording. (Whatever which channel event, all channel record.)

-Event on schedule: Event record only on schedule time.

-Event + Schedule: Except event on schedule recording, it would still do record if event happens not on

schedule time.

Notice:

After record mode setup, user needs to press REC button to start. Set on Always mode, DVR do record if user

presses REC. Other record mode would ready on DVR idle status.

4. RECORD AUDIO: ON / OFF.

-Choose on, DVR would do audio recording.

>SCHEDULE SETUP<

```
RECORD SETUP
1. HDD FULL
2. RECORD SPEED
3. RECORD MODE
4. RECORD AUDIO
5. QUALITY
6. SCHEDULE SETUP
7. CHANNEL SETUP
```

Press direction buttons up/down to
SCHEDULE items.

◁ ▷   Press values change button to change values.
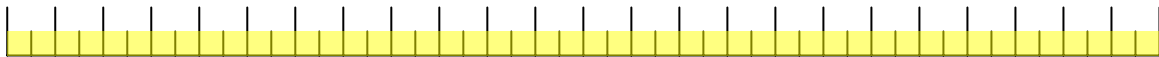
Factory default is everyday all schedules time on
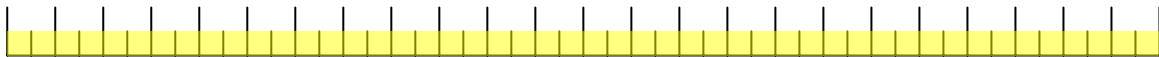recording.

SCHEDULE SETUP

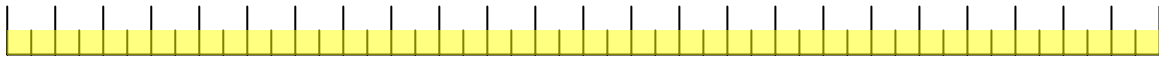CURSOR STEP   30MIN / 6MIN ▷▷
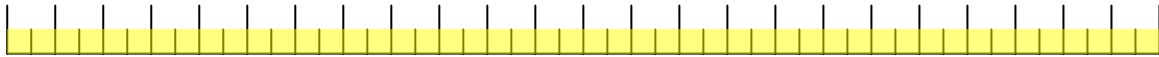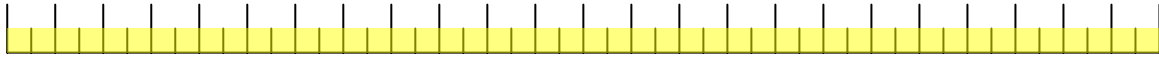
SUN

MON

TUE

WED
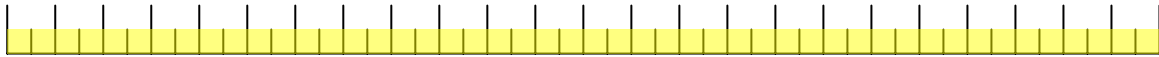
THU

FRI

SAT
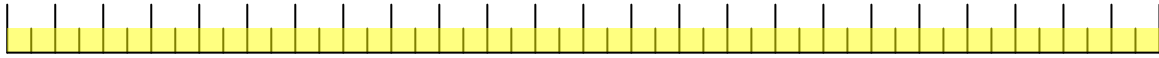
Press direction buttons up/down/left/right to see
date and time difference.

◁ ▷   Press values change left/right button to change 30MIN or 6 MIN

++ / - - : Increase / Reduce. Every day record with factory default.
On ▷▷, use up/down button to choose date, press ◁ ▷button to change on
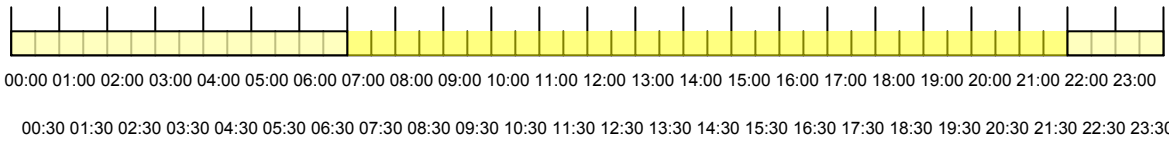+ + or - -. After, use direction left / right button to start increase or reduce time area.
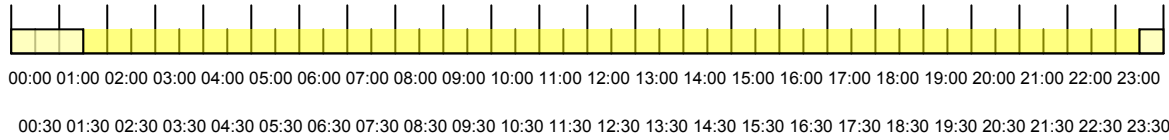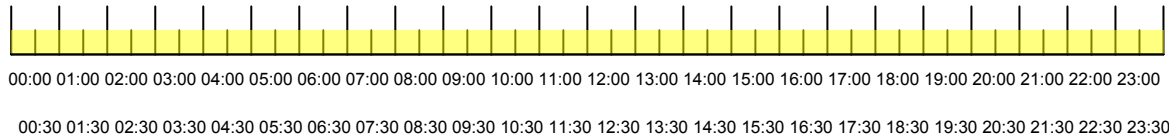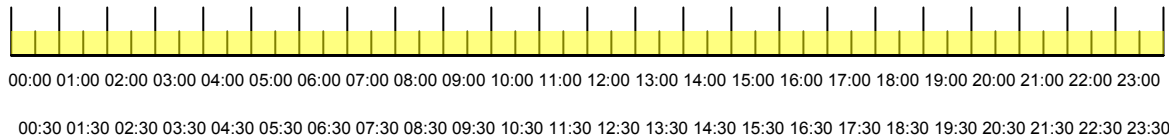Mode function button
+ + increase
- - reduce

33

SCHEDULE SETUP

CURSOR STEP

SUN

00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

00:30 01:30 02:30 03:30 04:30 05:30 06:30 07:30 08:30 09:30 10:30 11:30 12:30 13:30 14:30 15:30 16:30 17:30 18:30 19:30 20:30 21:30 22:30 23:30

MON

00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

00:30 01:30 02:30 03:30 04:30 05:30 06:30 07:30 08:30 09:30 10:30 11:30 12:30 13:30 14:30 15:30 16:30 17:30 18:30 19:30 20:30 21:30 22:30 23:30

TUE

00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

00:30 01:30 02:30 03:30 04:30 05:30 06:30 07:30 08:30 09:30 10:30 11:30 12:30 13:30 14:30 15:30 16:30 17:30 18:30 19:30 20:30 21:30 22:30 23:30

WED

00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

00:30 01:30 02:30 03:30 04:30 05:30 06:30 07:30 08:30 09:30 10:30 11:30 12:30 13:30 14:30 15:30 16:30 17:30 18:30 19:30 20:30 21:30 22:30 23:30

THU

00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

00:30 01:30 02:30 03:30 04:30 05:30 06:30 07:30 08:30 09:30 10:30 11:30 12:30 13:30 14:30 15:30 16:30 17:30 18:30 19:30 20:30 21:30 22:30 23:30

FRI

00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

00:30 01:30 02:30 03:30 04:30 05:30 06:30 07:30 08:30 09:30 10:30 11:30 12:30 13:30 14:30 15:30 16:30 17:30 18:30 19:30 20:30 21:30 22:30 23:30

SAT

00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

00:30 01:30 02:30 03:30 04:30 05:30 06:30 07:30 08:30 09:30 10:30 11:30 12:30 13:30 14:30 15:30 16:30 17:30 18:30 19:30 20:30 21:30 22:30 23:30
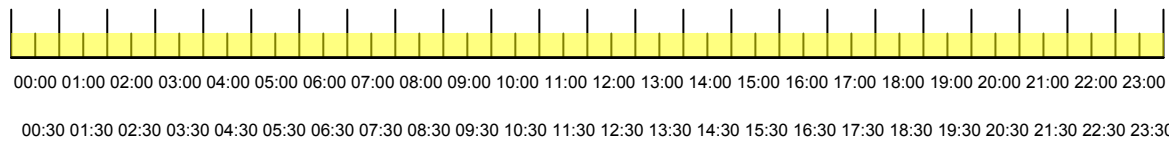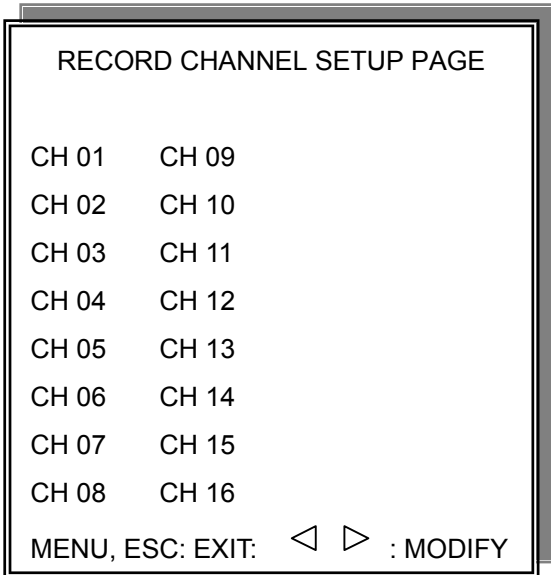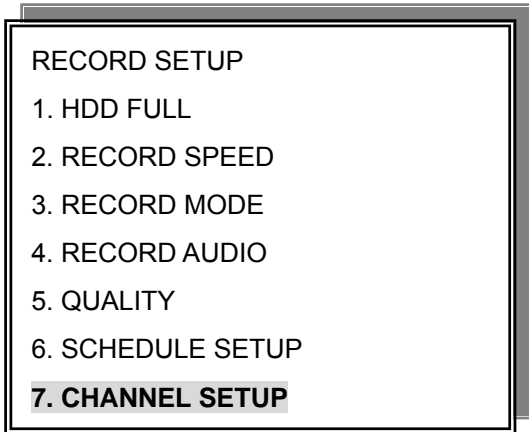
For example: TUE ~ SAT, all day schedule time recording, but SUN 07:00 ~ 22:00 and MON 01:30 ~ 11:30 do schedule recording. User can press ENTER to see the schedule time area difference.

7. RECORD CHANNEL SETUP PAGE

RECORD SETUP

1. HDD FULL

2. RECORD SPEED

3. RECORD MODE

4. RECORD AUDIO

5. QUALITY

6. SCHEDULE SETUP

7. CHANNEL SETUP

RECORD CHANNEL SETUP PAGE

CH 01	CH 09
CH 02	CH 10
CH 03	CH 11
CH 04	CH 12
CH 05	CH 13
CH 06	CH 14
CH 07	CH 15
CH 08	CH 16

MENU, ESC: EXIT: ◁ ▷ : MODIFY

CH 01 : ON / OFF   CH 09 : ON / OFF

CH 02 : ON / OFF   CH 10 : ON / OFF

CH 03 : ON / OFF   CH 11 : ON / OFF

CH 04 : ON / OFF   CH 12 : ON / OFF

CH 05 : ON / OFF   CH 13 : ON / OFF

CH 06 : ON / OFF   CH 14 : ON / OFF

CH 07 : ON / OFF   CH 15 : ON / OFF
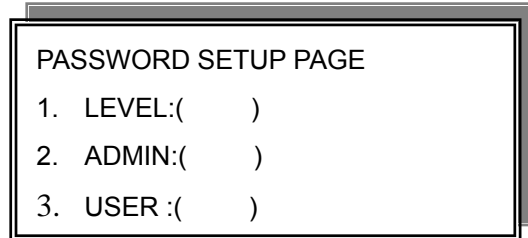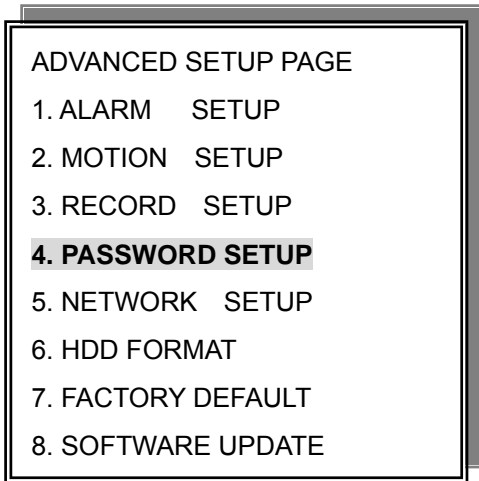
CH 08 : ON / OFF   CH 16 : ON / OFF

Press direction buttons up/down to choose item.

◁ ▷   Press values change button to change values.

4. PASSWORD SETUP

```
ADVANCED SETUP PAGE
1. ALARM    SETUP
2. MOTION   SETUP
3. RECORD   SETUP
4. PASSWORD SETUP
5. NETWORK   SETUP
6. HDD FORMAT
7. FACTORY DEFAULT
8. SOFTWARE UPDATE
```

```
PASSWORD SETUP PAGE
1.   LEVEL:(        )
2.   ADMIN:(        )
3.   USER :(        )
```

1)   LEVEL (Log In level ID type setup)

   >NONE / ADMIN / USER

-ADMIN

-USER

-NONE, user does not need to insert password before enter in MENU.

Press direction buttons up/down/left/right to Choose items position.

◁ ▷   Press values change button to change values.

2)   ADMIN password

   >44444 (Factory Default)

Notice:

Password always 5 character input, cannot < 5 characters

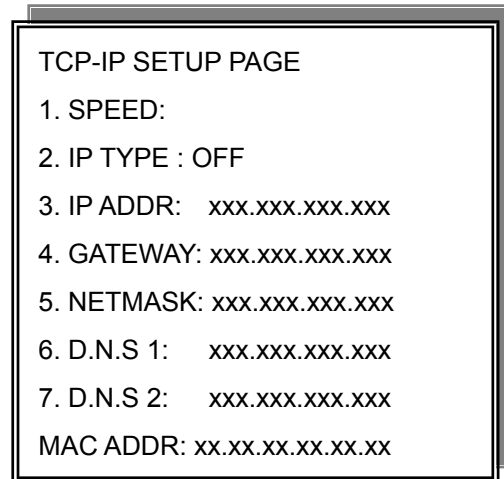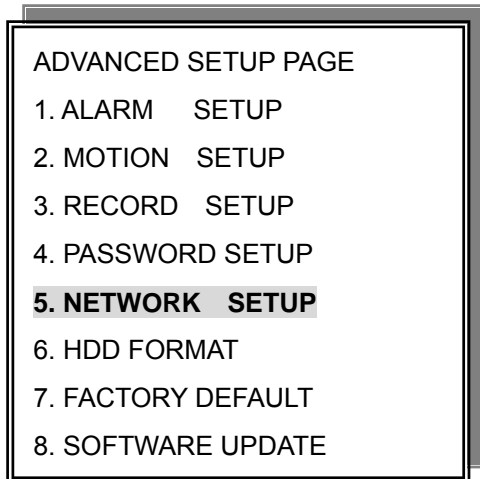3)   USER password

   >11111 (Factory Default)

Press direction buttons up/down/left/right to choose items position.

Press numeric (1 ~ 10)button or remote controller (1 ~ 10)to choose

Choose ADMIN: Only admin password can login advance menu.

Choose User: Both user and admin password can login menu but can not go advance menu.

5. NETWORK SETUP

```
┌─────────────────────────────────┐
│ ADVANCED SETUP PAGE             │
│ 1. ALARM    SETUP               │
│ 2. MOTION   SETUP               │
│ 3. RECORD   SETUP               │
│ 4. PASSWORD SETUP               │
│ 5. NETWORK  SETUP               │
│ 6. HDD FORMAT                   │
│ 7. FACTORY DEFAULT              │
│ 8. SOFTWARE UPDATE              │
└─────────────────────────────────┘
```

```
┌─────────────────────────────────┐
│ TCP-IP SETUP PAGE               │
│ 1. SPEED:                       │
│ 2. IP TYPE : OFF                │
│ 3. IP ADDR:   xxx.xxx.xxx.xxx   │
│ 4. GATEWAY: xxx.xxx.xxx.xxx     │
│ 5. NETMASK: xxx.xxx.xxx.xxx     │
│ 6. D.N.S 1:   xxx.xxx.xxx.xxx   │
│ 7. D.N.S 2:   xxx.xxx.xxx.xxx   │
│ MAC ADDR: xx.xx.xx.xx.xx.xx     │
└─────────────────────────────────┘
```

1. SPEED : >512K / 512K / 256K / 128K / 64K

2. IP TYPE: OFF

> OFF (Close network function) / STATIC (LAN / WAN)

3. IP ADDR: 192.168.192.250 (Factory Default)

4. GATEWAY: 192.168.192.001 (Factory Default)

5. NETMASK: 255.255.255.000 (Factory Default)

6. DNS 1: xxx.xxx.xxx.xxx

7. DNS 2: xxx.xxx.xxx.xxx

-MAC ADDR

XX.XX.XX. Machine number, user cannot change.

Press direction buttons up/down/left/right to
TCP-IP items position.

◁ ▷

Press values change button to change values.

>**Network Requirement: DVR can not go through IP sharing device, only HUB.**
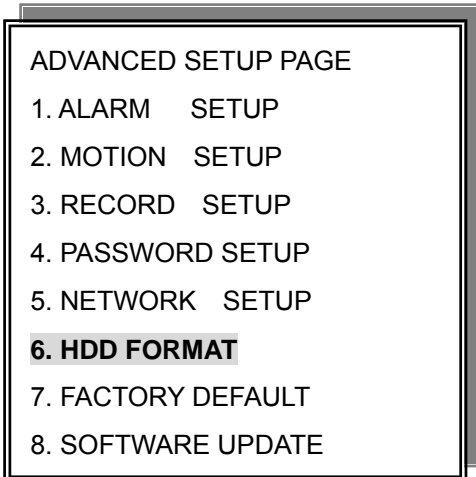
LAN (Local Area Network)

1)   DVR side input local IP address such as 192.168.192.5, or use the factory default IP.

2)   After DVR network setting, install the remote viewer to computer. Computer network IP also need to
      setup on local IP address such as 192.168.192.6. DVR and computer IP address cannot equal.

>PC→DVR: need a cross-link cable.

WAN (World Area Network)

1) User apply static IP from network company, then input IP Gateway, and Subnet mask address to DVR
   TCP-UP setup.

2)   Advice user apply network speed Upload 512K / Download 512K, to avoid image data too big influence
   the remote quality. The network traffic jam always make data transfer slow, it is normal.

3)   After DVR TCP-IP setup, install the remote viewer to computer. See the network page.

6. HDD FORMAT

```
ADVANCED SETUP PAGE
1. ALARM    SETUP
2. MOTION   SETUP
3. RECORD   SETUP
4. PASSWORD SETUP
5. NETWORK   SETUP
6. HDD FORMAT
7. FACTORY DEFAULT
8. SOFTWARE UPDATE
```

Press direction buttons up/down to
HDD FORMAT items position.
Press ENTER to format all HDD.

Caution: User can format HDD only when
all HDD stop record or playback.
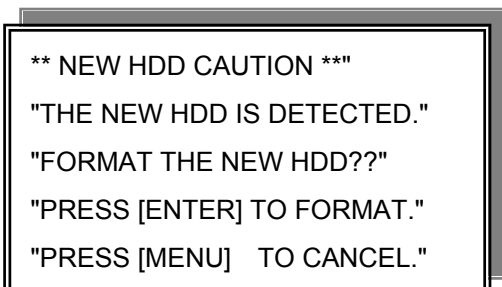
→ HDD FORMAT CAUTION!! :

```
 ** HDD FORMAT CAUTION!!**
ALL DATA IN HDD WILL BE
DESTROYED!!

PRESS [ENTER] TO FORMAT.
PRESS [ESC] TO CANCEL.
```
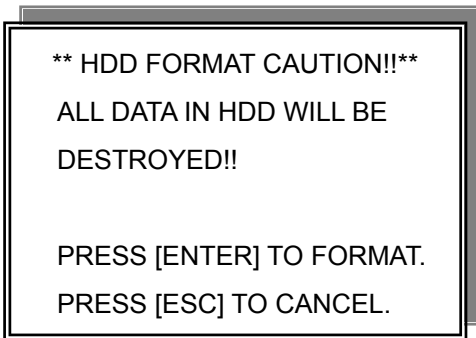
Press ENTER button to format hard disk.

ESC   Press ESC button to cancel hard disk format

Notice:

New hard disk detect: When DVR power, system would detect new hard disk install. If the hard disk is in
different format, then the message popup. User needs to press ENTER to format, if press MENU, and then
this hard disk would not be detected.

```
** NEW HDD CAUTION **"
"THE NEW HDD IS DETECTED."
"FORMAT THE NEW HDD??"
"PRESS [ENTER] TO FORMAT."
"PRESS [MENU]   TO CANCEL."
```

```
Press FORMAT to format.
Press MENU to exit.
```

MENU

7. FACTORY DEFAULT

ADVANCED SETUP PAGE
1. ALARM   SETUP
2. MOTION   SETUP
3. RECORD   SETUP
4. PASSWORD SETUP
5. NETWORK   SETUP
6. HDD FORMAT
7. FACTORY DEFAULT
8. SOFTWARE UPDATE
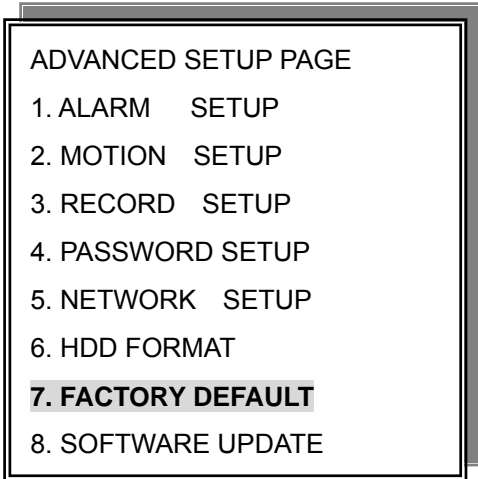
Press direction buttons up/down to
FACTORY DEFAULT items position.
Press ENTER to restore.

    ** CAUTION!! **
ALL SETUP VALUE WILL BE CLEAR,
AND RESTORE FACTORY DEFAULT!!

PRESS [ENTER] TO RESTORE.
PRESS [ESC] TO CANCEL.
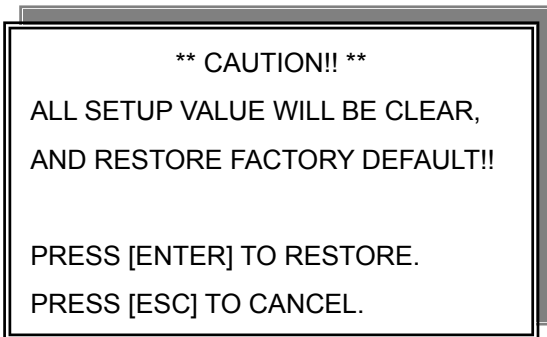
Press ENTER button to restore.

ESC   Press ESC button to cancel.

8. SOFTWARE UPDATE

ADVANCED SETUP PAGE
1. ALARM   SETUP
2. MOTION   SETUP
3. RECORD   SETUP
4. PASSWORD SETUP
5. NETWORK   SETUP
6. HDD FORMAT
7. FACTORY DEFAULT
8. SOFTWARE UPDATE

SOFTWARE UPDATE
UPDATE METHOD:
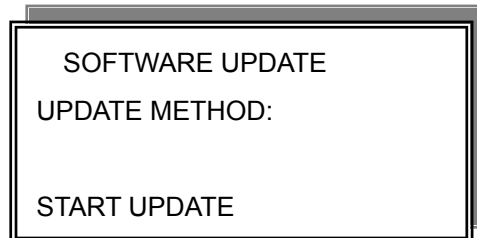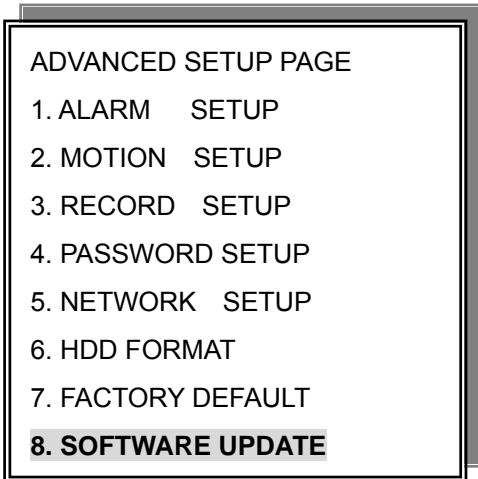
START UPDATE

UPDATE METHOD: USB / NETWORK

USB: Copy firmware to USB device, and then plug in DVR USB interface. Choose START UPDATE and then press ENTER to start.

NETWORK: P2P. Press START UPDATE to link.

USB ERROR displays if no any USB device plug.

USB Data Read and Networking

1. **Windows 2000 / XP**

2. **Resolution 1024 x 768.**

3. **RAM up to 128 MB**

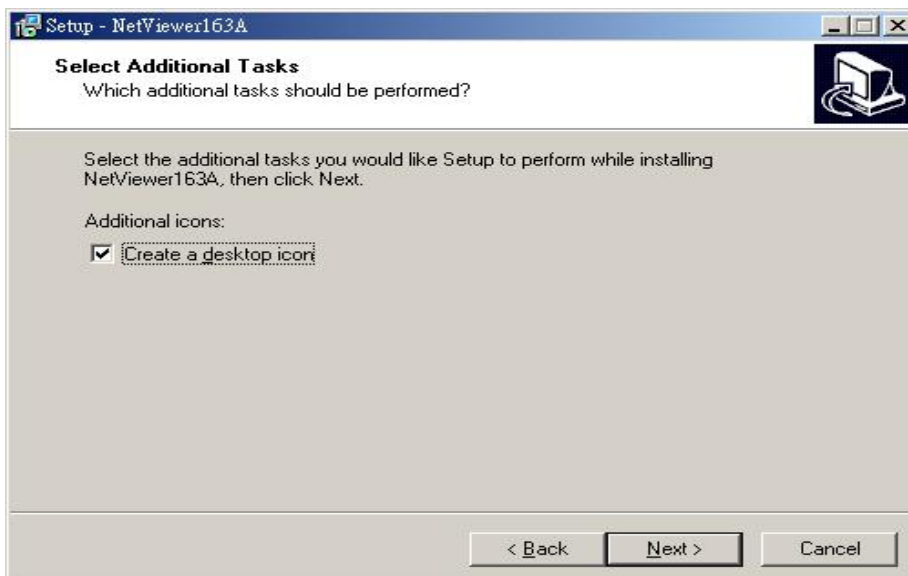4. **Double click SETUP.EXE of CD, and then start to install.**

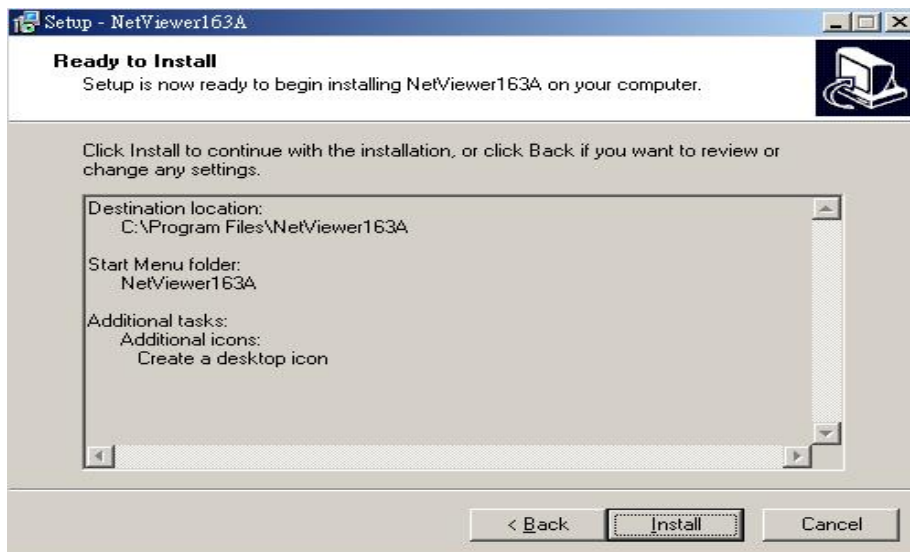**5. Browse install path and then click Next.**
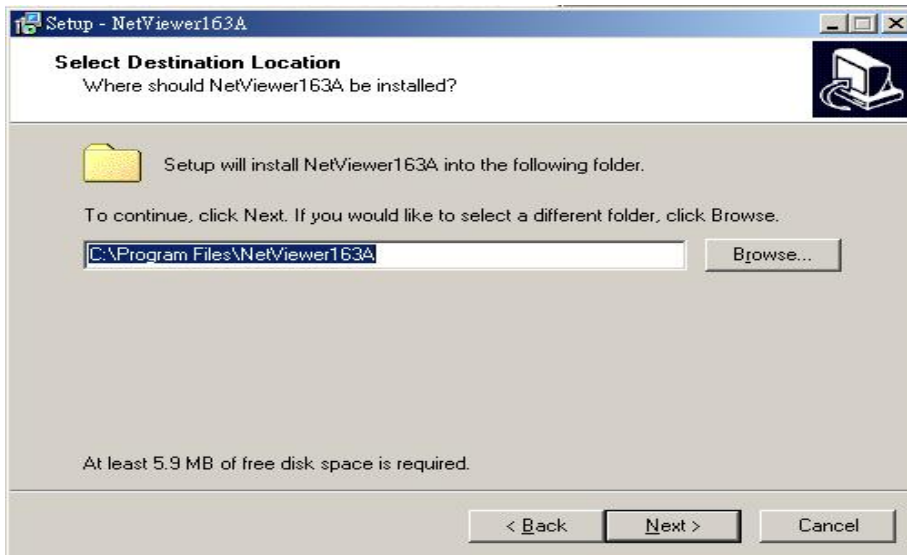
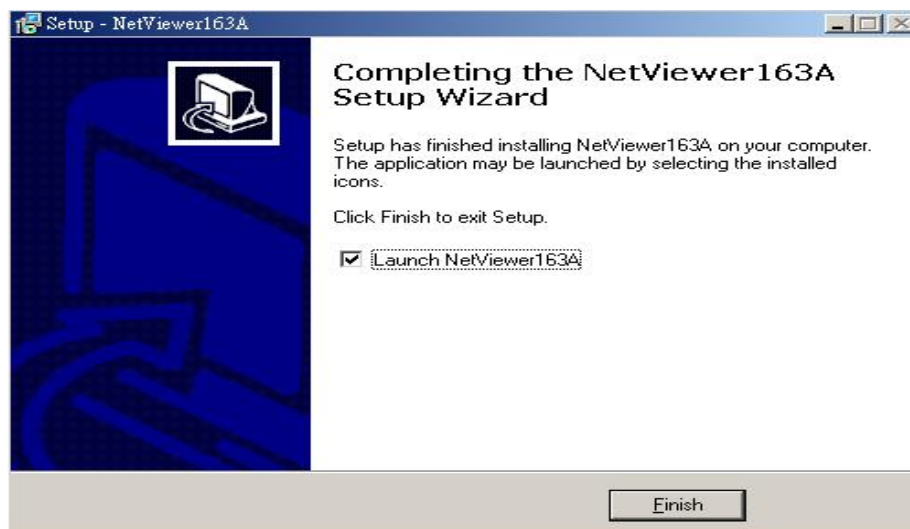**6. Name chooses and then click Next.**
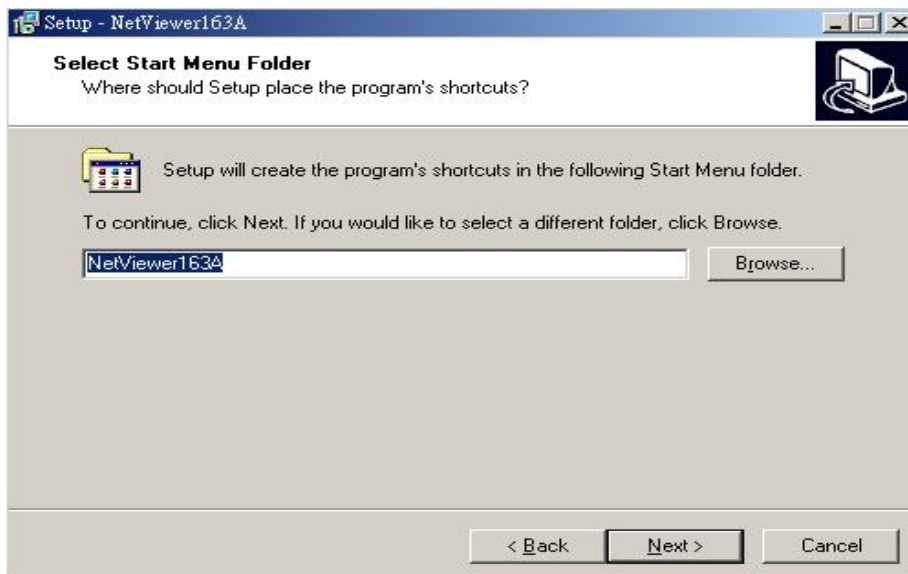
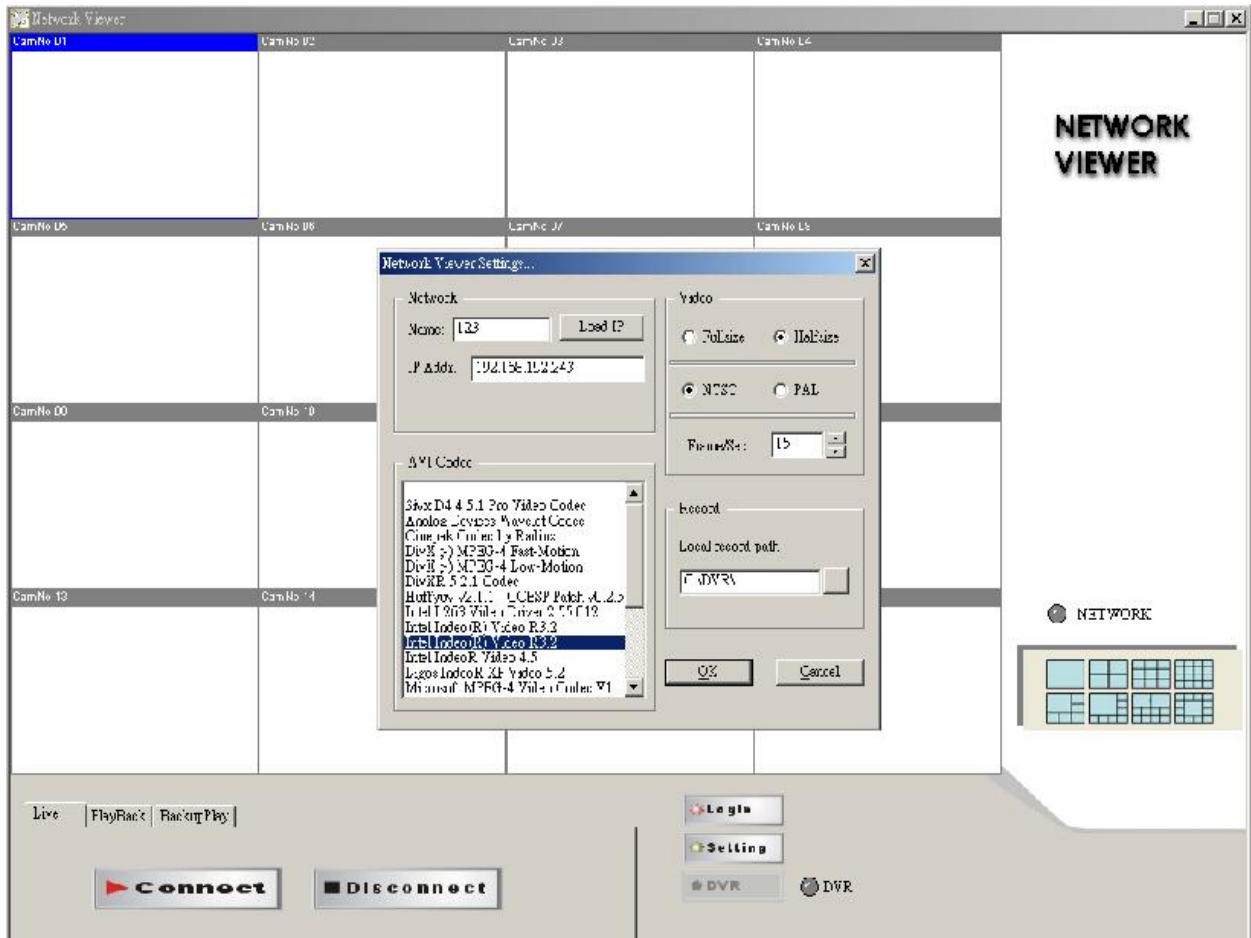**6. Click create a desktop icon or not, and then click Next.**

7. Click INSTALL to start install.

8. Click Launch Netviewer 163A and click Finish to done.

9. Click Setting.

Name: Name the IP address position.(Each name and IP saves every different input)

IP Addr: Input DVR IP address.

AVI codec: Not support currently. (Next version update.)

Video: Fullsize, Halfsize: Not support currently. (Next version update.)

NTSC, PAL. Frame/Sec: Not support currently. (Next version update.)

Click OK to confirm.

On Live / PlayBack 時, click DVR to save action pictures, *.DVR file. It needs this software to play.

Browser, Local record path could change. The path user changes is for .DVR save, *JPG file is always C:\DVR

**10. Click Login, depends on limits of authority.**
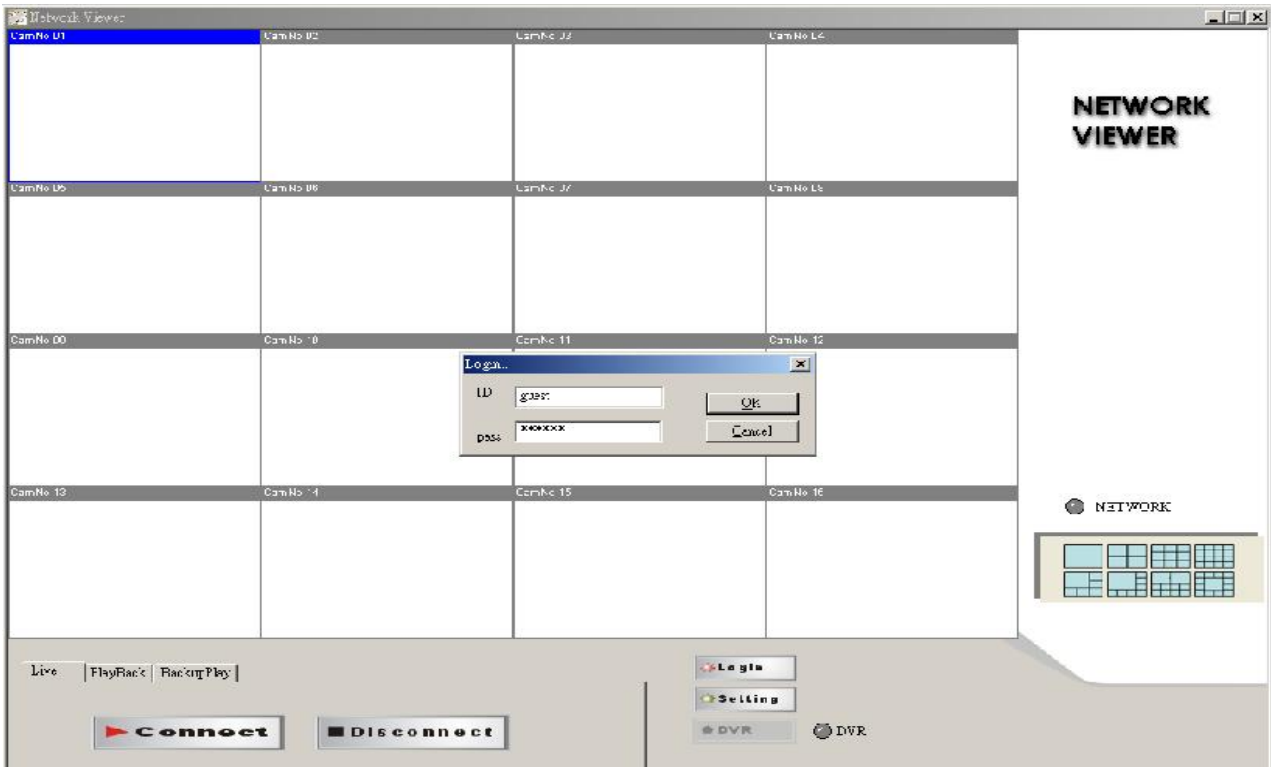
Factory ID is guest login. Input admin if you are a administer. Must input on little character.

Password, admin : 123456, guest : 123456. Password displays when log in, user just needs to input ID.

Guest log in, no PlayBack function authority.

Click OK, after about 5 seconds, admin login!! Message popup. And then click Connect to start.
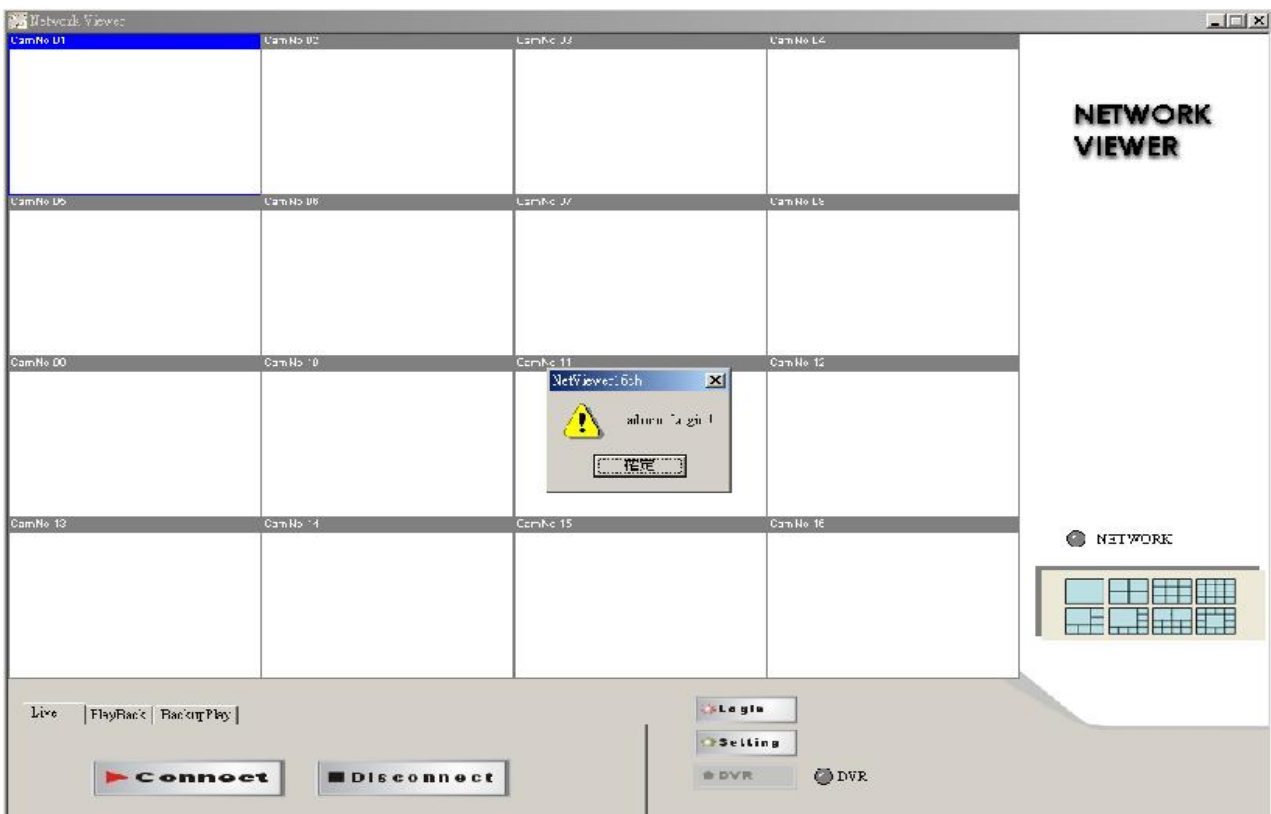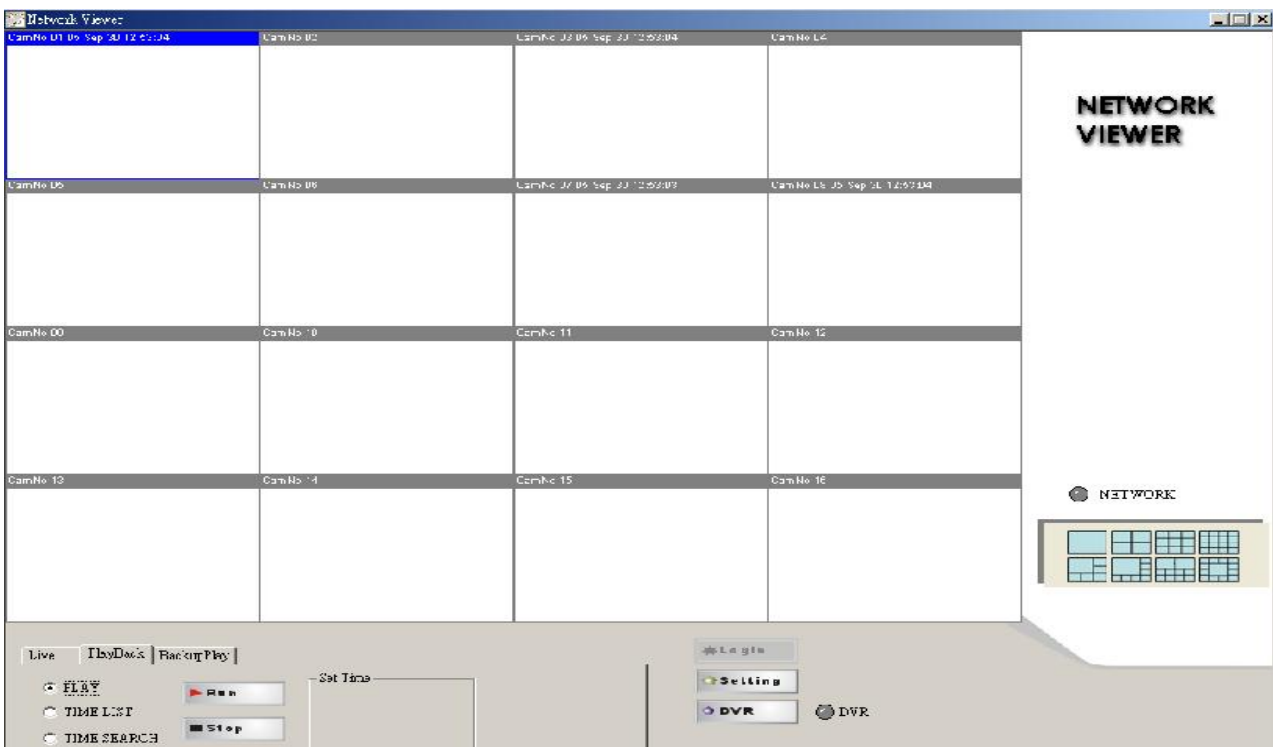
11. Click Connect, after about 2 ~ 3 seconds to start connect LAN or WAN. Click Disconnect to stop.

If the NETWORK is connecting success, the blue light would keep glisten

Else, blue is always on light or not display, the connecting is failed.

**Click live / PlayBack / BackPlay mode.**

Live: DVR live watching.

PlayBack: Change to playback mode. After 2 ~3 seconds to change.

PLAY: Click RUN around 2 ~ 30 seconds to start play first record. If over 30 seconds, cannot find any file or network disconnect, Time out message popup. Please try again play or connect again. Click STOP to end playback.

TIME LIST: Click RUN, time lists popup. On the item, double click it to start play, around 2 ~ 30 to start play first record. If over 30 seconds, cannot find any file or network disconnect, Time out message popup. Please try again play or connect again. Click STOP to end playback.
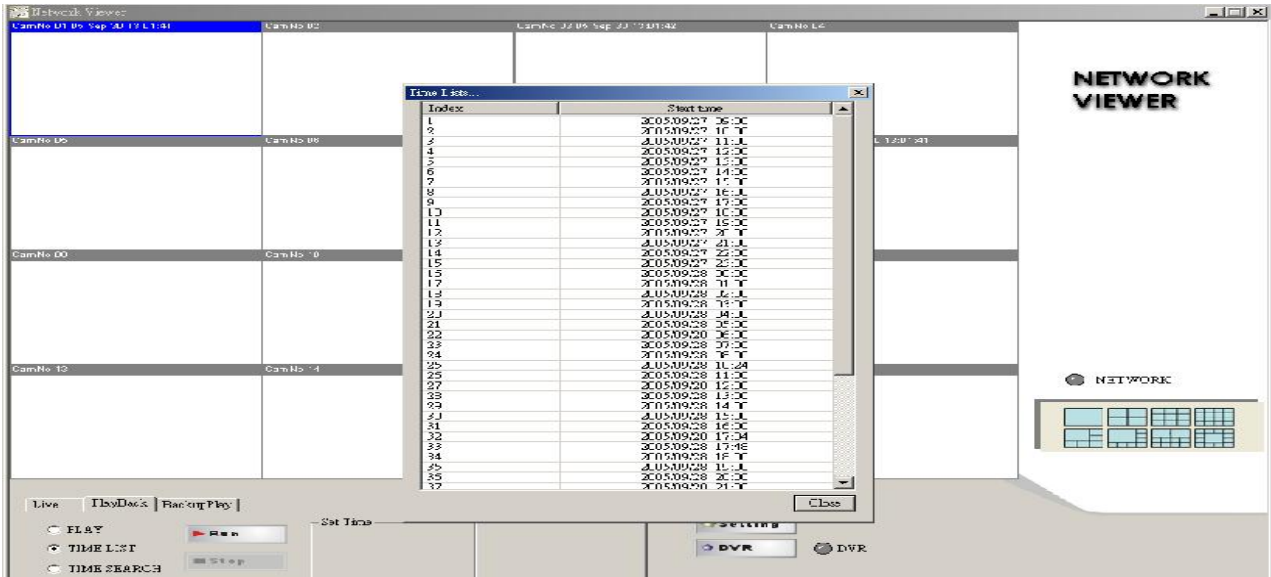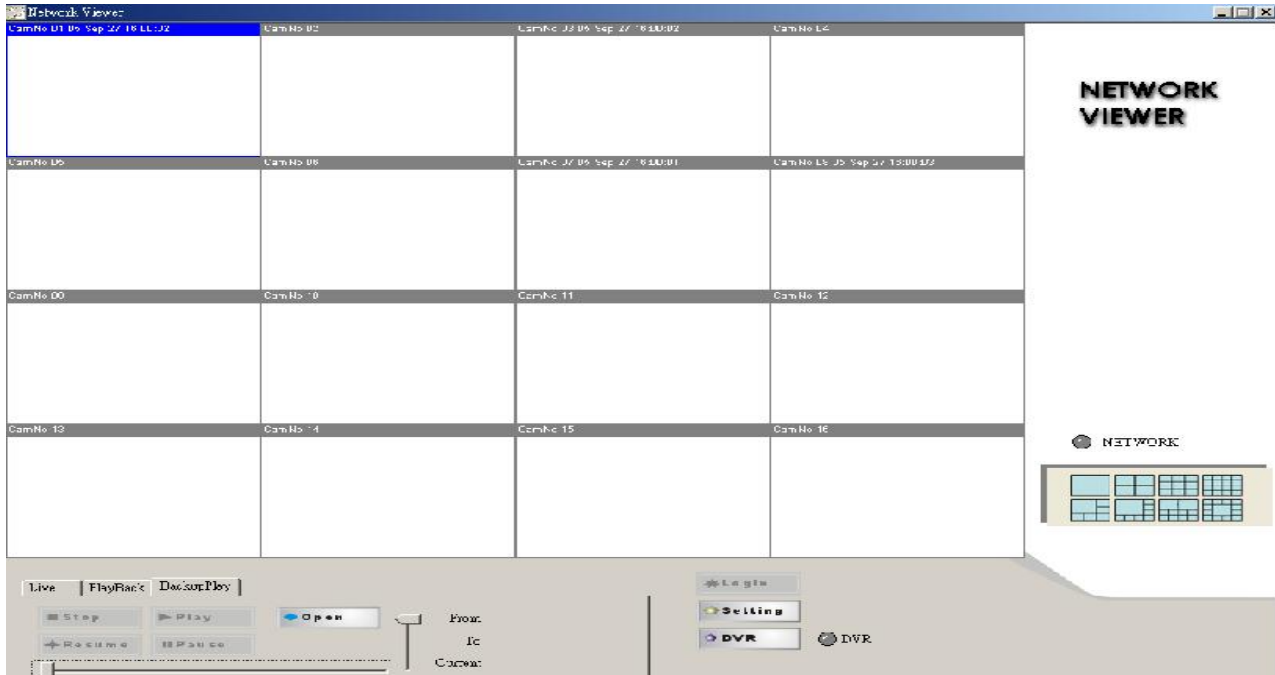

TIME SEARCH: Chose date and time, click RUN, around 2 ~ 30 seconds to start play first record. If over 30 seconds, cannot find any file or network disconnect, Time out message popup. Please try again play or connect again. Click STOP to end playback.
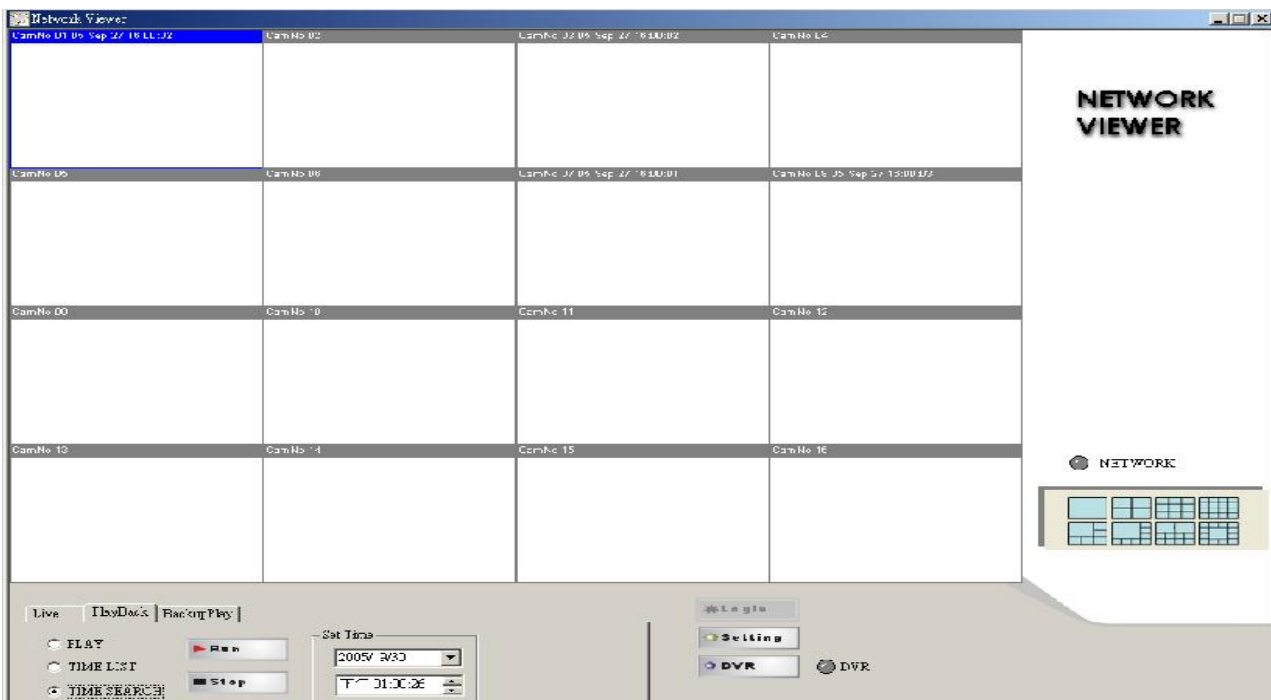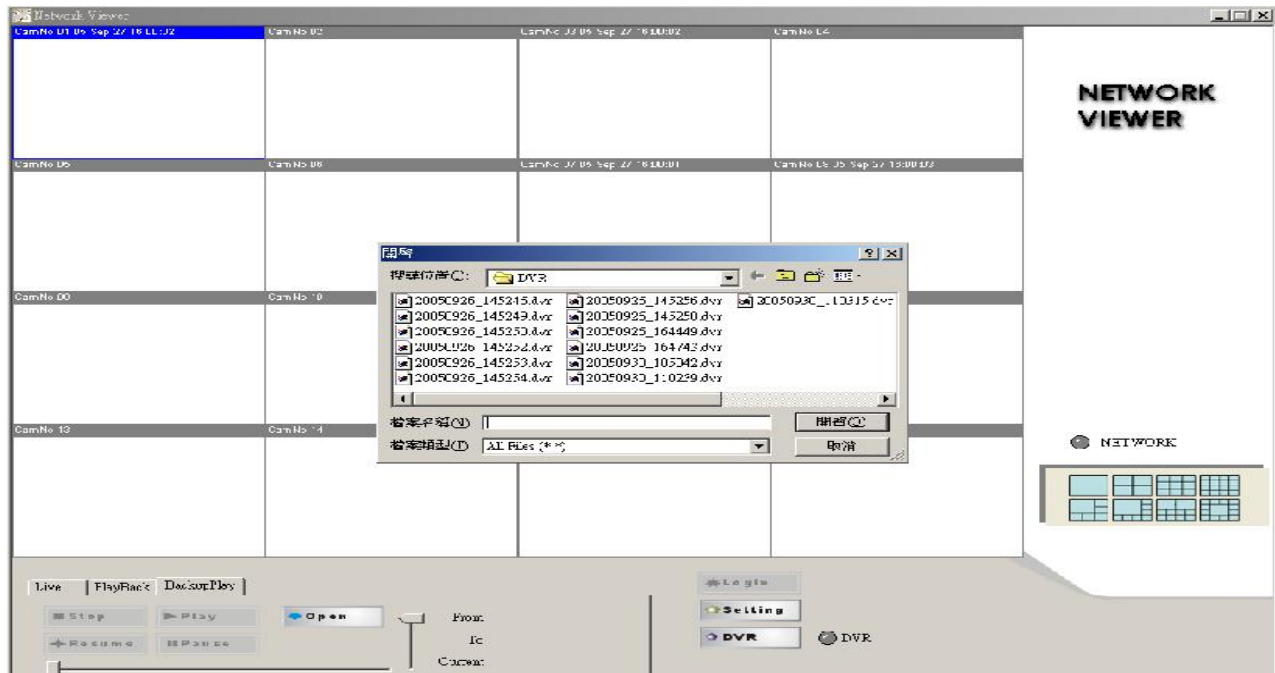

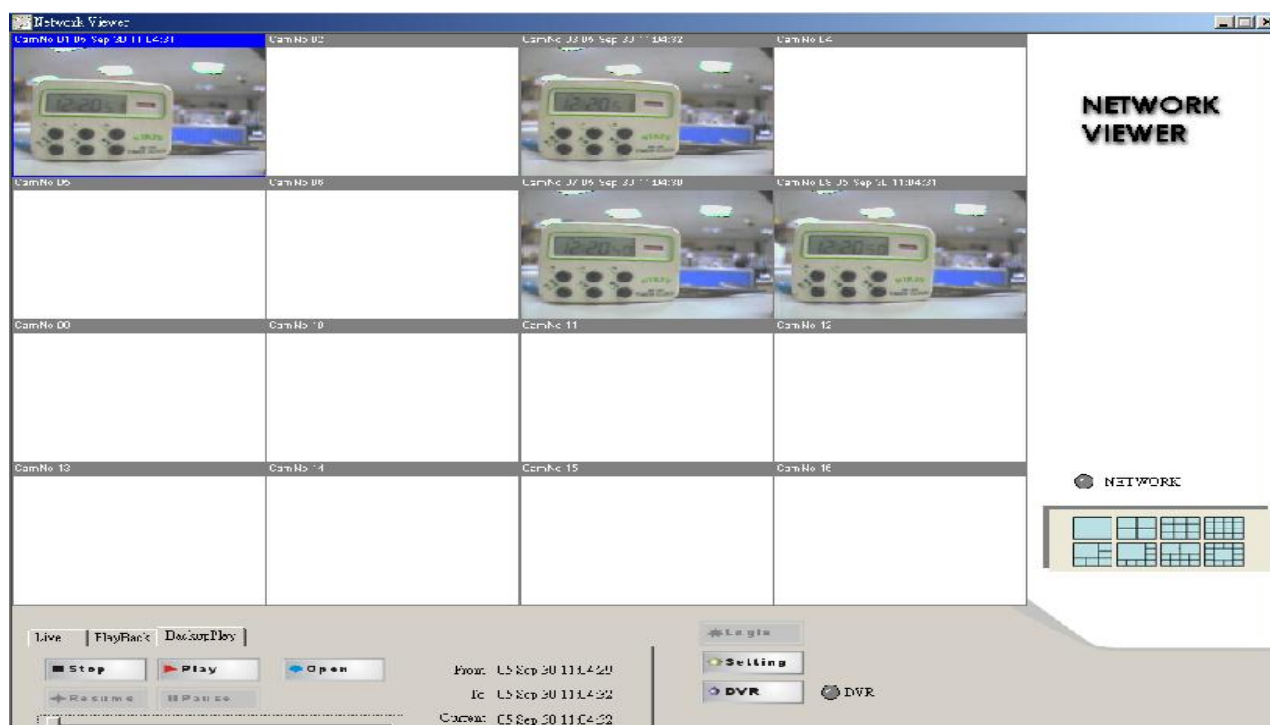Notice: PLAY / TIME LIST / TIME SEARCH change, needs to stop play first.
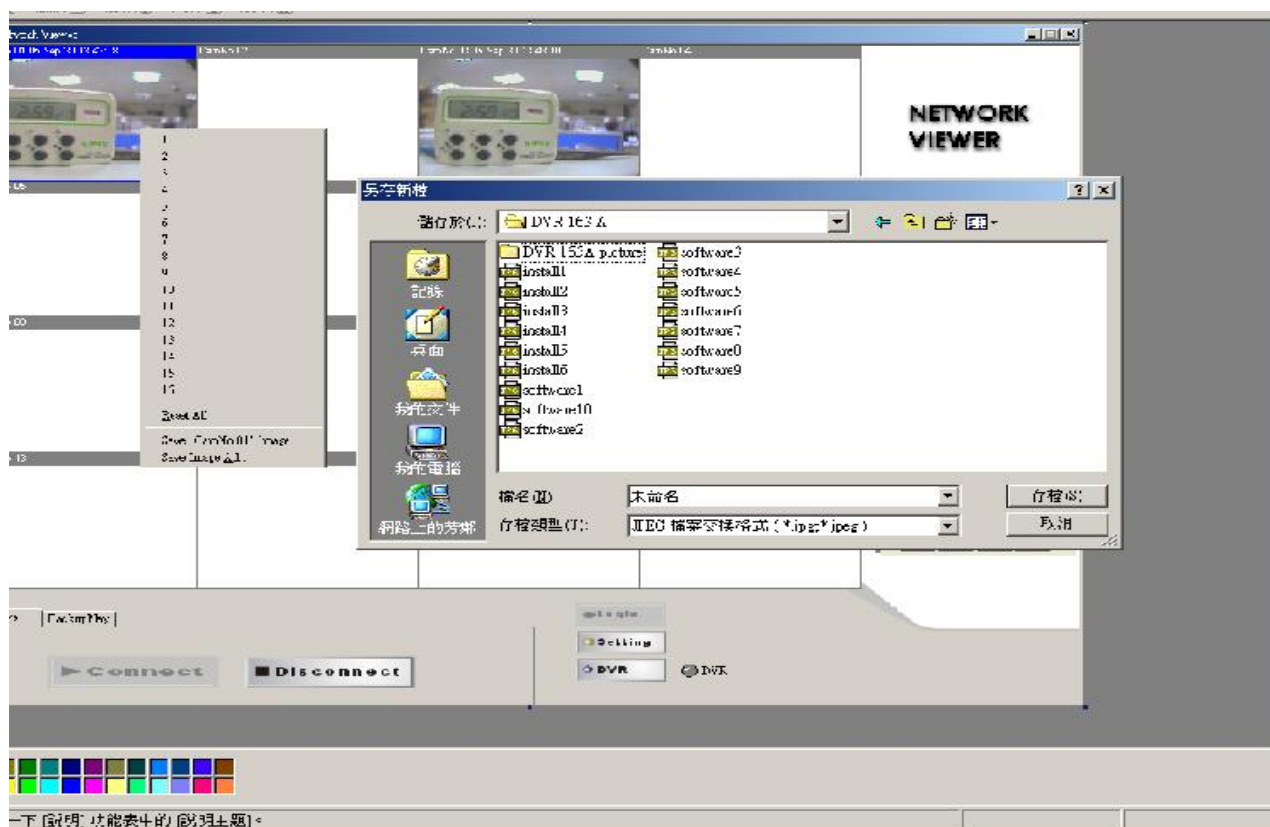
12. BackupPlay:

- Click Open to choose file path.

Click Play to start backup data play. Click Stop to end. Click Pause to temporary stop playback. Click Resume to restart.

Choose camera, click mouse right button. Camera 1 ~ 16 switches or reset all. Click Save "CamNo xx image . / save image all to save current image. Save path is C:\DVR.

Record Time Table: 80GB HD

Record Quality: Low. KB Range: Lowest: 13, Highest: 20. Average: 17.

REC FPS	120	60	30	15	10
REC Hour	21.7	21.7	43.5	87.1	130.7
REC FPS	5	3	2	1	1/2
REC Hour	261.4	435.7	653.5	1307.1	2614.3
REC FPS	1/3	1/5	1/10	1/15	1/30
REC Hour	4357.2	6535.9	13071.8	21786.4	43572.8

Record Quality: Normal. KB Range: Lowest: 14, Highest: 25. Average: 20.

REC FPS	120	60	30	15	10
REC Hour	18.5	18.5	37	74	111.1
REC FPS	5	3	2	1	1/2
REC Hour	222.2	370.3	555.5	1111.1	2222.2
REC FPS	1/3	1/5	1/10	1/15	1/30
REC Hour	3703.7	5555.5	11111.1	18518.5	37037

Record Quality: Fine. KB Range: Lowest: 15, Highest: 28. Average: 22.

REC FPS	120	60	30	15	10
REC Hour	16.8	16.8	33.6	67.3	101
REC FPS	5	3	2	1	1/2
REC Hour	202	336.7	505	1010.1	2020.2
REC FPS	1/3	1/5	1/10	1/15	1/30
REC Hour	3367	5050.5	10101	16835	33670

Record Quality: High. KB Range: Lowest: 17, Highest: 30. Average: 24.

REC FPS	120	60	30	15	10
REC Hour	15.4	15.4	30.8	61.7	92.5
REC FPS	5	3	2	1	1/2
REC Hour	185.1	308.6	462.9	925.9	1851.8
REC FPS	1/3	1/5	1/10	1/15	1/30
REC Hour	3086.4	4629.6	9259.2	15432	30864.1

Record Quality: Super. KB Range: Lowest: 19, Highest: 45. Average: 32.

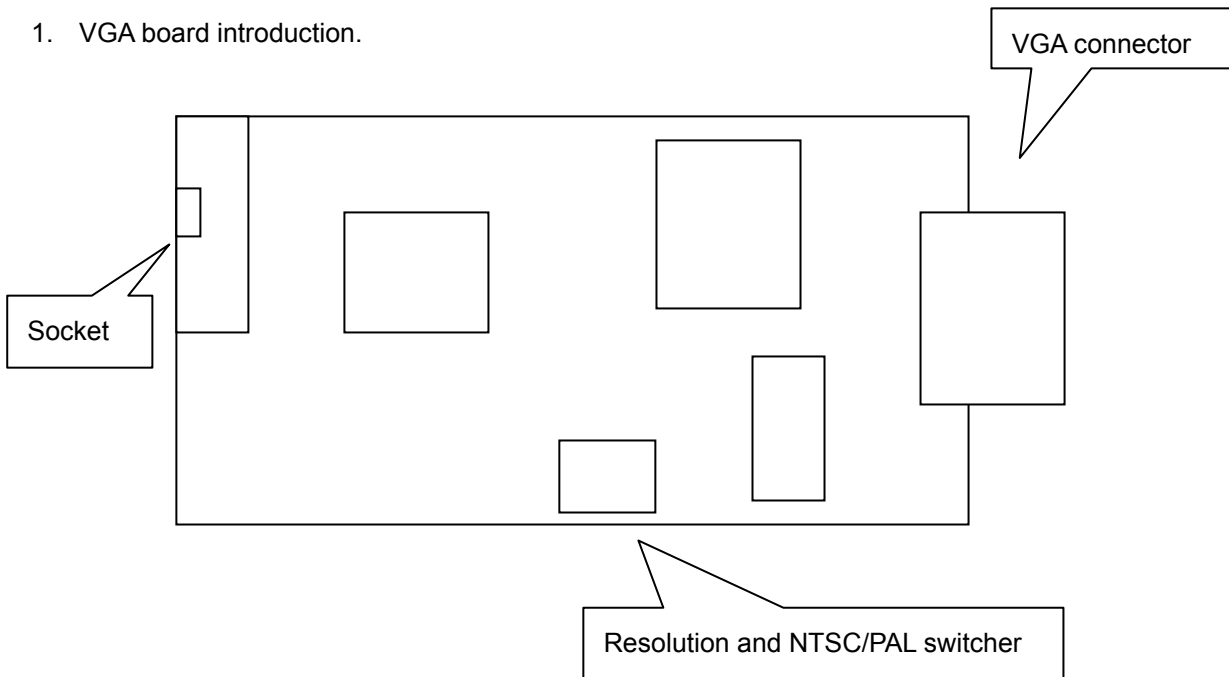| REC FPS	120	60	30	15	10
REC Hour	11.5	11.5	23.1	46.2	69.4
REC FPS	5	3	2	1	1/2
REC Hour	138.8	231.4	347.2	694.4	1388.8
REC FPS	1/3	1/5	1/10	1/15	1/30
REC Hour	2314.8	3472.2	6944.4	11574	23148.1

VGA Description (Optional)

Accessories:

1. 20 PIN Male to Female D-SUB pin cable X 1

2. VGA PCB bracket X1

3. Screws X4

(Only fit on product serials Z7-00-VGA0-00)

1. VGA board introduction.

3. Resolution and NTSC/PAL switcher table

| Pin 4	Resolution	Pin 1	Pin 2	Pin 3
PAL -----ON	640X480 60HZ	ON	ON	ON
NTSC ---OFF	800X600 60HZ	ON	ON	OFF
	1024X768 60HZ	ON	OFF	ON
	640X480 75HZ	ON	OFF	OFF
	800X600 75HZ	OFF	ON	ON
	1024X768 75HZ	OFF	ON	OFF
Resolution and NTSC/PAL switcher description				
Step. 1	DVR Power off			
Step. 2	Pin 4 switcher to NTSC or PAL			
Step. 3	DVR Power on			
Step. 4	Pin 1 ~3 switcher resolution. It cannot be power off DVR.			

Hard Disk x 2 can be installed on DVR base. Both are 2-iron slices immobile type.

2 Iron slices are in the accessories box, please tell supplier if slices are not exist

2-iron slices immobile type:
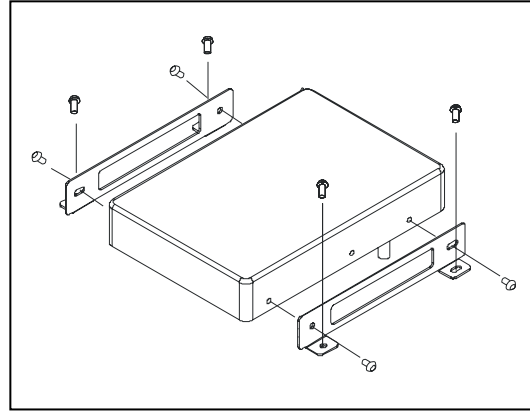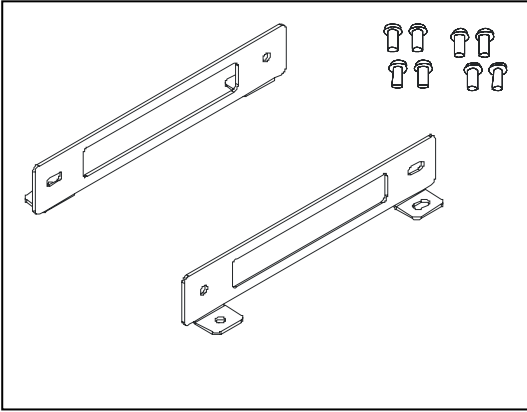
Slices immobile type: 4 screws hole on each slice. 2 for DVR base fixed. Another 2 for hard disk fixed.
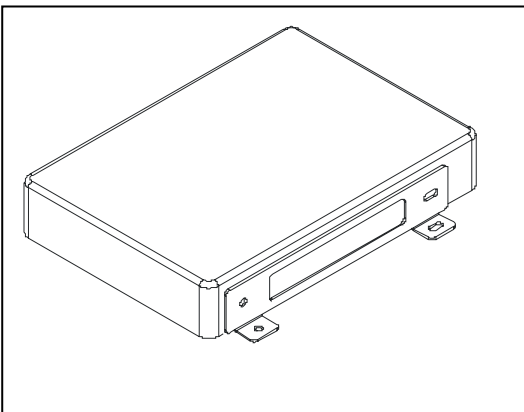
Hard disk install.: Locking hard disk screws, then locking DVR base screws to fixed on.